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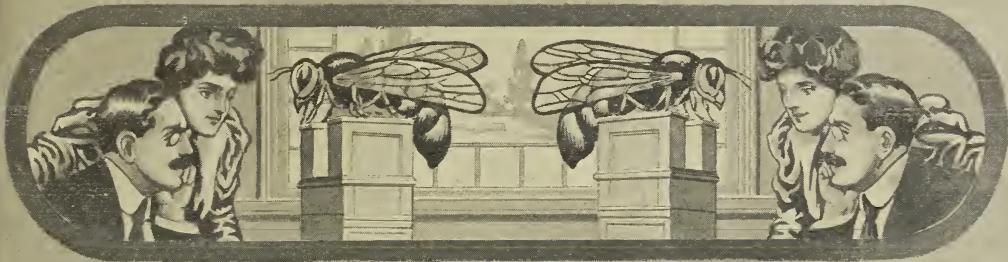
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GLEANINGS IN BEE CULTURE

VOL. 34

NOV. 15, 1906

NO. 22.



A Bee-Keeper and his Automobile

THE A.I. ROOT CO.,
MEDINA — OHIO

Entered at the Postoffice, Medina, Ohio, as Second-Class Matter

BEE-KEEPERS

We carry the largest stock of goods in the Middle West. The low freight rates from

Toledo

will save you money. We will buy your HONEY and beeswax, and pay highest market price. It will pay you to correspond with us when your crop is ready to market. No shipment is too large for us. Carloads a specialty.

Queens! Queens!

We have a yard at Toledo with 100 colonies and over, which we use for queen-rearing only; besides several out-yards which we run for honey, also for extra bees and brood, and queens are mailed same day order is received.

Our 70-page Catalog

is sent free to any one asking for it. No matter whether you keep one colony or five hundred. We also handle a large line of poultry supplies, and sell eggs for hatching. Our 1906 mailing list is sent with every catalog. Don't buy until you have seen it.

Griggs Brothers

523 Monroe St. : Toledo, Ohio

BIENENZÜCHTER

von Deutschland, Schweiz, Österreich,
u. s. w., schreiben Sie uns um unsere
1906 Preisliste für

Bienenwohnungen,
Walzwerke,
Honigschleüder,
Rauchapparat,
Bienen schleier,
Handschuhe,
Futterkästen,
Bienenflucht "PORTER,"
Fluglochschieber für Kasten,
Königinnenabsperrgitter,
Weiselhäuschen,
Schwarmfangbeutel,
Entdeckungsmesser,
Dampfwachsschmelzer,
Wabenentdeckungsapparat, und
alle anderen Artikel von.

The A. I. ROOT Company,

Der grösste Fabrik der Welt.

EMILE BONDONNEAU,

General Vertreter für Europa und Kolonien.
142 Faubourg Saint Denis, Paris, 10me.

CENTRAL AND NORTHERN PENNSYLVANIA

Distributor of Root's Goods from the
Best shipping - point in this State.
WHOLESALE - AND - RETAIL

I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also rear Italian and Caucasian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

Headquarters for

Bee - Supplies.

"Root's Goods at Root's Factory Prices."

If you want to purchase bee-supplies, THE BEST MADE, order from Cincinnati, as you will save the freight charges and time it takes for goods to be shipped from Medina to Cincinnati. Cincinnati is one of the best shipping-points, particularly for the South. I keep all the time a large stock on hand and can ship promptly on receipt of order. . . .

**A Special Discount / /
/ / / on Early Orders**

Will buy or sell **HONEY** extracted or comb

If you have honey to sell describe quality or mail sample with lowest price delivered Cincinnati. If in need, state quality and quantity wanted and we will cheerfully quote you prices.

Beeswax Wanted!

We all the time pay highest market price on delivery of goods.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firm & attached to all four sides, the entire surface covered by travel stain, or otherwise ; the entire sealed except an occasional **open** on the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood ; combs straight ; one-eighth part of comb surface soiled, or the entire surface slightly soiled ; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood ; combs comparatively even ; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms "white, amber, and dark"; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW YORK.—There is a good demand, principally for fancy stock of both white and buckwheat honey. Mixed and off grades are more or less neglected. Receipts have been quite heavy of late, but there is no overstock whatsoever, as the demand has been good right along. We quote fancy white at 15; No. 1 at 13, 14; No. 2 at 12; buckwheat and mixed, at 10 to 11 cts. Extracted, demand good, especially for fancy grades. Prices are ruling higher. We quote California white sage at 7½ to 8; light amber, 7 to 7½; amber at 6½ to 7c per lb.; Southern in barrels at 55 to 65 cts. per gallon, according to quality. There is not much demand for extracted buckwheat, and we do not expect any for some time to come. There seems to be a large crop of this grade, judging from the offerings made. The nominal price at present is from 6 to 6½. Beeswax, 29 to 30.

HILDRETH & SEGELEN,
265-267 Greenwich St., New York.

Nov. 9.

PHILADELPHIA.—While the supply of comb honey is equal to the demand, large quantities of comb honey having arrived in the market in the last few days, the price still remains high. The outlook, however, is that, when the season advances, and the beekeepers ship more of their crop to the market, the prices will be a little weaker. We quote: fancy white comb honey, 16 to 18c; No. 1, 14 to 15; amber, 11 to 13; fancy white extracted, 7½ to 8½; light amber, 6½ to 7c. We are producers of honey, and do not handle on commission.

W. A. SELSER,

Nov. 8.

10 Vine St., Philadelphia, Pa.

INDIANAPOLIS.—Fancy and A No. 1 white comb sells for 16 to 17, and demand is good; fancy amber, 11 to 12, with slow demand; No. 1 white, 13 to 14, demand not good. Best grades of extracted honey in 60-lb. cans bring 8 to 9, and demand is good, but higher prices will retard the market; amber extracted bringing 6½. Good average beeswax sells here at \$33.00 per 100 lbs.

WALTER S. PODER,

Nov. 7.

513 Mass. Ave., Indianapolis, Ind.

Honey and Wax Wanted and For Sale.

MILWAUKEE.—This market is in good condition as touching the best qualities of honey, either comb or extracted. Values are steadily firm at quotations. The supply is only moderate, and receipts meet quite ready sale when in good order and quality pleasing to the eye as well as the taste. We feel justified in advising shippers to send forward their good honey, and feel sure the next 60 days will show satisfactory results. We continue to quote honey in cases, 1-lb. sections, fancy, 16 to 17; 1-lb. sections, mixed, 15 to 16; extracted in barrels, cases, and pails, white, 8 to 8½; ditto dark, 7 to 8. Beeswax, 29 to 30.

A. V. BISHOP & Co.,
119 Buffalo St., Milwaukee, Wis.

Nov. 12.

ST. LOUIS.—We wish to state that the receipts of comb honey, also extracted, are very small and inadequate to the demand. We quote: Fancy white comb honey, 15 to 16; No. 1, 13 to 14; light amber, 13 to 13½. Broken and inferior, less. Extracted, light amber, California, firm at 7 to 7½. Spanish needle, 7½ to 8, in 5-gallon cans; Southern, in barrels, in good demand at 5½ to 6. The market is bare of the latter description. Beeswax, prime, at 29 to 29½. All impure and inferior, less.

R. HARTMAN & Co.,
14 So. Second St., St. Louis, Mo.

Nov. 9.

CINCINNATI.—The honey market is rather quiet at this date, owing to the market being flooded with comb honey which sells slowly at from 14 to 16 cts. Extracted amber honey sells at 5½ to 6½; white and fancy white grades find sale at from 7½ to 8½. There is not so much moving, as one might be led to believe. Beeswax is dragging; however, we continue to pay 29 to 30 cts. for a choice bright yellow article.

THE FRED. W. MUTH Co.,
51 Walnut St., Cincinnati, Ohio.

Nov. 3.

ST. PAUL.—Fancy No. 1 white-clover honey, per lb., 15 to 16; No. 2 white-clover honey, per lb., 13 to 14. These prices represent those obtained by jobbers on this market in round lots. Reports from country indicate that the bulk of this year's output has been marketed, and that No. 1 white clover will be scarce.

W. PATTON,

Nov. 8.

Sec. Bd. of Trade, St. Paul, Minn.

KANSAS CITY.—The demand for both comb and extracted honey is good, receipts light. We quote fancy white comb, 24 sections, at \$3.25; No. 1 white comb, 24 sections, at \$3.00; No. 1 white and amber, 24 at \$2.75; extracted white, per lb., 7; extracted amber, per lb., 6 to 6½. Beeswax, 25.

C. C. CLEMONS & Co.,
Kansas City, Mo.

Nov. 8.

ATLANTA.—We are about cleaned up on honey, with very little demand for either comb or extracted. We quote as per previous issue.

JUDSON HEARD & Co.,
Atlanta, Ga.

Nov. 8.

See Classified Ads. on pages 1465—'66.

BEESWAX WANTED

We are paying 29c. per lb. cash delivered here, for

CHOICE YELLOW BEESWAX

Send us your shipment now.

MONEY BACK THE DAY SHIPMENT ARRIVES.

THE FRED W. MUTH CO.

51 WALNUT ST.,

CINCINNATI, OHIO.

SCHENECTADY.—Stock continues to move off briskly, and, in fact, No. 1 buckwheat is rather scarce. We quote fancy white clover, 15 to 16; No. 1, 14 to 15; mixed grades, 12 to 13; buckwheat, 11 to 12½; extracted, light, 6½ to 7½; dark, 5½ to 6, in 160-lb. kegs.

C. MACCULLOCH,
Schenectady, N. Y.

Nov. 10.

CHICAGO.—The market is taking honey, both comb and extracted, in a very satisfactory way. The price of No. 1 to fancy comb is 15 to 16; off grades, 1 to 2 cts. per lb. less. White extracted, 7½ to 8; amber, 7; dark, 6 to 6½. All of this is governed by quality, condition, and package. Beeswax, 30.

R. A. BURNETT & Co.,
199 So. Water St., Chicago, Ill.

Nov. 7.

ZANESVILLE.—There is a fair supply of and demand for fancy white comb, which brings \$3.75 to \$4.00 per case of 24 sections. No other grades are offered. There is some call for extracted in glass packages for the fancy grocery trade, and demand will increase as weather grows colder. Beeswax, 27 to 30.

E. W. PIERCE,
Zanesville, Ohio.

Nov. 8.

Chas. Israel & Brothers
486-490 Canal St., New York
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

FOR SALE.—Extracted honey, strictly pure, buckwheat, 6½c; clover mixed, 7c in 60-lb. cans and 150-lb. kegs. This State production; best flavor.

H. R. WRIGHT,
Wholesale Commission, Albany, N. Y.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair.
St. Louis, 1904.



D. 20TH CENTURY
BEST,
COOLEST,
CLEANEST,
STRONGEST.
CHEAPEST.

Largest Smoker Sold for a Dollar.

We Send Direct from Factory to Buyer when the Nearest Supply-dealer Does not Keep it.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

Price \$1.00; three for \$2.50.
By mail add 25 cents for postage.

F. DANZENBAKER, MIAMI, FLORIDA

WE WILL BUY

New crop honey, comb and extracted, in any quantity. If you have a crop to dispose of, write us fully as to quality, quantity, style of package, etc., and you will have our answer by return mail. If we should fail to come to an understanding as to price, we may arrange to handle your crop on consignment, feeling confident that we can do you justice in every respect.

WE WILL SELL

to Bee-keepers whose crop is not large enough to supply their trade, various grades of honey. Let us know your wants and we will do our best to satisfy you.

BEESWAX. We are in the market to buy beeswax at any time of the year. Write us when you have any to sell.

HILDRETH & SEGELKEN,
265-267 Greenwich St.,
NEW YORK, N. Y.

Established 1873
Circulation 30,000

64 pages, semi-monthly
\$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

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POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

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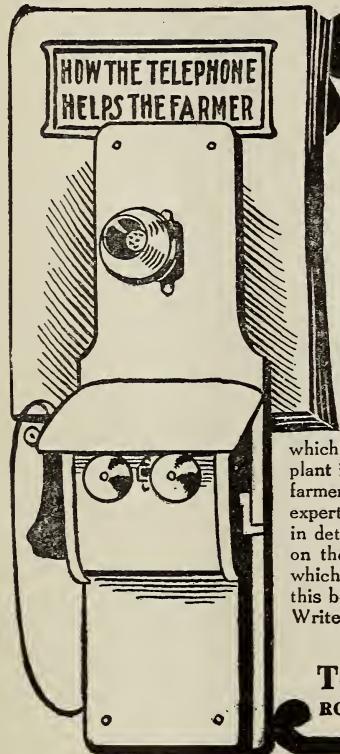
Gleanings in Bee Culture one
year, and one copy How to
Keep Bees, - - - - - \$1.50

BUCKWHEAT HONEY!

Our clover and raspberry honey is all sold—went at 8 and 8½ cts., according to quantity—but we still have 6000 lbs. of buckwheat. Right here let me say that this buckwheat honey was left on the hives until it was all sealed over, and is thick, rich, and ripe—far

superior to the thin, rank stuff often found on the market. You needn't take my word for it—send for a sample. It is put up in 60-lb. cans, two in a case, and the price is 6 cts. a pound.

W. Z. HUTCHINSON, Flint, Michigan.



You Want This Free Book

Of course you need a telephone. You need it for business, for the family, in sickness, in case of fire, or in danger of any kind. The question is—how can you get one on your farm? This little book which we send free the same day we get your request answers the question perfectly and tells you how to get the greatest convenience of the twentieth century so easily and cheaply that it becomes a positive saving and a money-maker, instead of an expense. It tells all about

Stromberg-Carlson Telephones

which are made in the largest independent telephone plant in the world. These are the best instruments for farmers' lines, because they have been constructed by experts for this particular purpose. They are described in detail in the booklet, together with full information on the organization of farmers' lines, the manner in which they are built, cost of material, etc. You want this book, F36 "How the Telephone Helps the Farmer." Write for it today.

**Stromberg-Carlson
Telephone Mfg. Company
ROCHESTER, N. Y.
CHICAGO, ILL.**

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

YEARS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.



STOVES

At Factory Prices
Oak Heater \$2.38



BEAUTIFUL STEEL RANGES
Our Five Flue Base Burner and many other styles straight from our factory to you at the same remarkably low scale of prices. 30 days trial on any of our stoves without sending one cent of money to us until you are satisfied you have a great bargain. Write for free special catalog.

The United Factories Co., Dept. S-32, Cleveland, O.

PATENTS

No attorney's fee until patent is allowed. Write for "Inventor's Guide."

FRANKLIN H. HOUGH, Atlantic Bldg., Washington, D.C.

Gleanings in Bee Culture

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Editor Home Department

H. H. ROOT
Ass't Editor

Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG."

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Root's Goods in Michigan!

Discount

for November is 5 per cent. This is as good as 10 per cent interest on your money. We gladly furnish estimates on your bill of goods for 1907.

Send for catalog.

Quality

in Bee-supplies means something when it is Root Quality. Michigan's best bee-keepers use Root's Goods.

We sell the Danz. Hive, the comb-honey hive.

M. H. Hunt & Son, Bell Branch, Mich.

We are Looking Ahead

for next season, and will have on hand when all sections arrive, 1,078,000,

OVR A MILLION.

Supply dealers look ahead for their stock—why not bee-keepers? It is to your advantage to do so. Sections will keep if not used next year, but if there should be a good year the extra amount of honey secured will pay for sections for years. Besides, we give a discount of 5 per cent for November. Make out an order for next season's use and send in during this month.

The A. I. Root Co., Syracuse, New York

A Page with Our Readers and Advertisers.

CLASSIFIED ADVERTISEMENTS.

It has been said, and most truthfully, that "the classified ad. set solid is the concentrated essence of advertising." It is the hope of the small advertiser. Isn't there something that you might sell? Haven't you something of little value to yourself, which yet may be very valuable to some one else? Why not turn something useless into cash? You can do it by inserting a two or three line ad. in GLEANINGS. Remember our guarantee of money back if no results. Perhaps you are engaged in some business that you can not afford to spend a large amount of money on in advertising. Put an ad. in our classified columns. If you have something for bee-keepers, try a liner in our "Bee-keepers' Directory." You will be surprised at the results. Only \$5.00 will pay for a two-line ad. one year; \$7.50 for a three-line, and \$10.00 for a four-line ad. including a year's subscription to GLEANINGS. You will find a classified ad. the most profitable investment you can make.

There has been some discussion lately in "Stray Straws" regarding the fireless cook stove. In October 15th issue Mr. Root replies to one of Dr. Miller's items as follows:

From the number of favorable reports I have seen of fireless stoves, I should say they were an unqualified success, and a great fuel-saver. We are planning to have one put in our house.

We are referring all inquiries we receive to the Fireless Cook Stove Company, whose advertisement you will find on p. 1454. The fireless cook stove is a very valuable addition to any kitchen, and if you are at all interested we suggest you write the above company for information, mentioning GLEANINGS.

Oct. 1st we ran a four-line ad. for one of our Michigan subscribers. He writes Nov. 8 as follows:

The A. I. Root Co.:—You should find enclosed 80c to pay for the classified ad. I am very much pleased with the result. The first applicant purchased the bees, and I had lots to answer that were disappointed.

THE WOOD BEE-HIVE CO.

Lansing, Mich., Nov. 8.

We know that our classified columns get results. The offer we made some time ago still holds good in these columns, viz., no results, money refunded.

During the winter, while other work is slack, farmers turn their attention to fence-building. Bee-keepers too should see to it that their bee-yard is securely fenced, and thus avoid trouble by stock getting among the hives and getting stung. A wire fence allows hives to be placed close to the fence, as the wire does not interrupt flight to any extent. When you are studying the fence question, do not fail to write the American Steel & Wire Company for information.

You will find their ad. on page 1455. A letter to Mr. Baache will receive prompt reply, and the little novel key-ring they offer looks very useful.

WHAT DOES THE FARMER BUY?

Under this title, in a recent number of *Judicious Advertising*, is found an article worthy of the attention of prospective GLEANINGS advertisers. We quote in part as follows:

A glance through one of the leading agricultural journals published in the country shows column upon column of advertising, but, with very slight exceptions, these are all on technical matters.

There are many things, however, which might have been placed in such a paper with a good chance of bringing remuneration. Such things as instantaneous water-heaters, perfected furnaces and heating apparatus, new varieties of kitchenware, inexpensive watches, new styles of furniture, gas stoves, mattresses, porch-shades, correspondence schools, in fact, the variety and number of things which might be played up is legion.

All of these articles are of a nature that wouldn't interfere with the trade at the country store. The farmer, of course, has been in the habit of buying most of his necessities of life of the local general merchant, and it would take a good deal of convincing before he would break away from a long-established custom. It would be in the line of good business, particularly if the copy were placed in those magazines which he has been accustomed to consider standard.

As has been suggested already, the first move has been made along these lines. It is a movement which is bound to increase, and with the increase will come a harvest to the general advertiser.

Get the farmer interested in your goods.

Doubtless over 90 per cent of GLEANINGS readers are interested in rural pursuits. Through GLEANINGS you can reach these readers best. Give it a test, Mr. General Advertiser.

A manure-spreader is becoming a necessity on almost any modern farm. It's always advisable to spread manure on the ground as soon as possible. A manure-spreader makes this work easy. The old way of piling manure, then repiling in the fields, is extremely wasteful. On a fair-sized farm a manure-spreader will pay for itself soon. Look over the ad. of the American Harrow Co., appearing on page 1454. Don't you think they are making a good proposition? If we weren't sure they would give you a square deal, and do just as they say, we would not let their ad. appear in GLEANINGS. If you are interested, drop them a postal for their book.

Great wads from little want ad's grow.—*Rinter's Ink.*

ADVERTISING - RATES

Twenty cents per agate line flat.
Classified columns—bona-fide exchange or want ads.—20c a line.

Discount for cash in advance, 5%; if paid in 10 days, 2%.

No objectionable advertising accepted.

Forms close 10th and 25th of each month.

Guaranteed circulation per issue, 30,000.

GLEANINGS IN BEE CULTURE
MEDINA, OHIO

10 WEEKS COPIES FOR ... 10c

We want every reader of GLEANINGS IN BEE-CULTURE to get acquainted with the

Weekly American Bee Journal

Certainly it would pay any bee-keeper to read it regularly. And in order that those who are not now getting it may do so, we want the opportunity to send it for 10 weeks for only 10 cents (stamps or silver.) That would be at least 160 pages of bee-literature for just one dime. We offer the last 10 numbers of 1906 for 10 cents as a "trial trip." You will want it for all of 1907 after the 10 weeks, we are sure.

SOME OTHER SPECIAL OFFERS TO NEW SUBSCRIBERS

The Weekly American Bee Journal from the time your new subscription is received to the end of 1907—and your choice of one of the following:

1. With Doolittle's book, "Scientific Queen-Rearing" (bound in leatherette) both for \$1.25
2. With Dr. Miller's "Forty Years Among the Bees," both for 1 80
3. With Dadant's "Langstroth on the Honey-Bee," both for 2 00
4. With Root's "A B C of Bee-Culture," both for 2 00
5. With a Standard-Bred Italian Queen, both for 1.50
(Queen mailed either before Nov. 1, 1906, or in May or June, 1907.)
6. With Gold Fountain Pen, both for 2 00
7. With Novelty Pocket Knife (your name and address on one side, and Queen, Worker and Drone on the other side) 2.00

A sample copy of the Weekly American Bee Journal free. Ask for it. Address all orders to

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ill.

The only roofing sold on a money-back guaranty.

READ OUR TRIAL OFFER.

Paroid Roofing

IF YOU want the most durable and most economical roofing you can buy, please read the guaranty we give on Paroid.

We can and do give you this guaranty because Paroid is the best ready roofing ever made.

If you will compare a sample of it with others, you can see and feel the difference.

Use your own judgment.

Put your samples out in freezing weather and then try to bend them.

Paroid will be soft and pliable.

The others will all break and crack!

The difference is in the way they are made.

We make the felt for Paroid in our own mills, established in 1817. We know how and we take no chances.

Other manufacturers buy their felt, the most important part of a ready roofing, where they can get it the cheapest, and run big risks at the very start.

We saturate the felt in a compound of our own, that renders every fibre of it water proof. Soaked, mind you, not merely dipped.

We coat it with the toughest, strongest, thick-

est, smoothest, most flexible and most durable coating used in any ready roofing ever made.

You can see and feel that for yourself.

Then we give you with every roll of Paroid a complete roofing kit, containing our patented caps—the only rust-proof cap made. Water can't rust them and cause them to work loose and spring a leak as all other caps do.

These are some of the

reasons why Paroid has stood the test of time for the United States Government here and in Cuba and the Philippines, for railway companies, manufacturers, farmers, dairymen and poultrymen everywhere.

Send today for *free samples*. Enclose 4c in stamps and we will send you our new 48-page book of plans for practical farm and poultry buildings.

If your dealer will not supply you, send to us direct. We pay the freight.

F. W. BIRD & SON,

**20 Mill Street, East Walpole, Mass.
1420 Monadnock Bldg., Chicago, Ill.**

BUY one lot of Paroid; open it; inspect it; apply it to your roof, and if then you are not satisfied that you have the best ready roofing made, send us your name and address, and we will send you a check for the full cost of the roofing including the cost of applying.

HAVE YOU READ BEE PRANKS?

This is a pamphlet compiled from newspaper clippings containing many laughable and wonderful anecdotes which have actually happened in connection with bees.

The book also contains, in nutshell form, what the great poets and other writers have to say about these interesting little insects.

WE GIVE IT FREE FOR THE NAMES AND ADDRESSES OF FIVE BEE KEEPERS if sent direct to G. B. LEWIS COMPANY, WATERTOWN, WIS., U. S. A.

WE WANT AGENTS FOR THE NEW ENGLAND AND SOUTHERN STATES EAST OF THE MISSISSIPPI

To buy our goods outright by the carload. Liberal inducements and exclusive territory.

G. B. Lewis Co., Watertown, Wis.
Bee-keepers' Supplies.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

NOV. 15, 1906.

No 22



E. W. ALEXANDER'S PLAN with very weak colonies in early spring, page 1357, is new—looks good.

WHY DOES a swarm settle before going off? R. Rhomberg, in *Bienen-Vater*, says that, when the swarm issues, some bees are overloaded with honey and some have too little. They cluster to have time to equalize their burdens before starting on their travels.

PARAFFINE-MAKERS suffer from a peculiar eruption of the skin. A writer in *Ill. Monatsblätter* raises the question whether bees may not become diseased from the paraffine in the large amount of adulterated foundation. We don't lose sleep over such a question in this country.

SO MORLEY PETTIT is going to be a Methodist preacher, p. 1353. I'd like to hear him preach. I should expect to say "amen" several times during the sermon, if I thought they wouldn't put out a Presbyterian for that sort of thing. [Mr. Pettit has the right sort of stuff in him. GLEANINGS wishes him success.—ED.]

IT IS STATED in *L'Apiculteur*, p. 364, that workers have never been known to be reared in drone-cells. In 1872 I saw workers emerging from drone-cells in a comb sent by R. R. Murphy to the *American Bee Journal*. I think other cases have been known. [I think we have had other reports of the same thing, and I am not sure but the fact has been reported once or twice by our own men as occurring in our own yard.—ED.]

SYLVIA C says in *L'Apiculteur* that the chief objection to the covered apiary is the larger number of queenless colonies. [I do not know why this should be so, unless colonies huddled under the shed are so close together that the bees mix in flight, with the result that some hostile bees begin the attack on the queen.—ED.]

I DON'T THINK, Mr. Editor, your guess, p. 1347, is correct as to that brick-and-orange pollen coming from asters. Asters and goldenrod are plentiful here, but are rarely visited by bees. Besides, bees are bringing in that same pollen to-day, Nov. 5, when these flowers are all dead. I've done some looking, and don't know where else to look.

BRO. A. I. ROOT, referring to the *Record-Herald* matter, page 1380, are you not just a little bit hard to please? When I read that very full contradiction, Aug. 8, it seemed to me all that was necessary. How many of the papers that published the false report gave as full a contradiction? It's something to be thankful for that some of the public prints the truth at least part of the time nowadays, in spite of the money of the liquor power.

IN VIEW of any possible danger of getting into trouble as to labels under the pure-food law, all that is necessary is to see that the labels tell the exact truth—not a bad plan to get into, the way of telling the truth, anyhow. [Yes, that is the gist of the pure-food law. It will not in any way harm the man who produces his own honey, and labels it for exactly what it is. But an inexperienced bee-keeper might purchase an alfalfa, sell it for white clover, and get into trouble.—ED.]

GERMAN BEE-KEEPERS have petitioned their governments to allow the word "honey," either singly or in combination with other words, to be used exclusively for the sweet product that bees gather from plants, change, and store in cells.—*Bienen-Vater*.

[We have, or shall have, about Jan. 1, the very thing in the national Hepburn pure-food law that the Germans are now seeking at the hands of their own government. From every point of view it should not be possible to label any product as "honey" unless it be that which was gathered by the bees from flowers, modified, and stored in their combs.—ED.]

PROF. GASTON BONNIER says that, among the field bees, must be distinguished those which he calls *prospectors* (chercheuses). Instead of going straight to their aim they seek here and there over all sorts of objects to find the day's work for the colony. Numerous in the morning, they become less and less as the day advances, themselves taking up the role of gatherers; consequently any sweet placed at a little distance is quickly found in the morning, but very slowly late in the day.—*Les Abeilles*. [This may be true; but I do not see how it can be proved.—ED.]

"TEN Congressional districts in Indiana are now organized by the liquor men. State Organizer Philip Heisee has issued an appeal to the liquor interests of the State to resist the temperance crusade lest the business be destroyed.—*Chicago Daily*. Must be something doing by the other sort of people to arouse a feeling like that. [You are right. The best evidence that the temperance cause is now progressing is the way the liquor people squirm, metaphorically speaking, through their papers. The time was, and that not over fifteen years ago, when they feared no efforts on the part of religious or temperance people. But, say: I doubt if ten Congressional districts in Indiana are organized for and by the liquor men.—ED.]

REFERRING to last footnote, page 1848, the curious part was that, so long as robbing continued at that pile—and it was for three or four days—only three-banders were at it. I tried to trace them to some particular hive, but failed to do so. Perhaps I did not try hard enough. [If you simply try to trace home a robber, I think you will fail in the attempt. If you had sprinkled flour on these bees as they came forth with their stolen sweets, then gone around and inspected the entrance of *every one* of your hives, I think you would have found that some particular hive was receiving most if not all of the powdered bees. Then is not true that a robber as it hurries from the hive will circle about a little? and where there are so many bees flying in the air it makes it next to impossible to trace it to any particular hive. But mark them in some way, and the task is easy.—ED.]

SOMETIMES when sealed honey is spaced wider so as to give room for it, the bees build fresh cells over the capping to fill with honey. I wonder if it is generally known that in such case the honey under the first capping is to the bees the same as so much wood? When they reach the first capping they seem to think it, the septum, and will starve rather than dig through. Not only so, but if the capping be slightly depressed,

without any second building over it, as sometimes happens (for what reason I don't in the least understand), such cells will not be uncapped by the bees. I have sent you, Mr. Editor, a bit of comb with a few such cells. I have submitted it to the robbers here, and they would not uncap it. Please see what your robbers will do with it. (Incidentally, notice the foundation-splint in the comb.) [What you say in the first part of this Straw Ink, I think, true, for I see evidence of the fact in our own yard. But it is not true in our experience that sunken cappings are any more immune to the attacks of robbers than cells capped in the ordinary way. We placed the very sample comb that you mailed us in the hands of our Mr. Wardell. Our robbers dug it open without any hesitation. It is possible our bees are better "trained" in the stealing business than yours, doctor.—ED.]

EDITOR YORK quotes this from *Printer's Ink*: "One of the most disastrous campaigns in the history of advertising, it is said, was that of corn products, with Karo corn syrup." Then he is inhuman enough—no, human enough—to gloat over the failure of an article, in advertising which such immense sums were spent, and closes by saying: "It was a deliberate attempt to displace honey as a table article, but the scheme did not work. The fact is, there is no substitute for honey; and if bee-keepers could spend as much money to advertise honey as was spent on trying to popularize the miserably tasting 'Karo-Korn Konkoktion,' we believe it would create such a demand for honey as would take every pound, every year, and at a greatly increased price over present market quotations." Which is, no doubt, true; but, alas, the history of the Honey-producers' League does not make the case look very hopeful. It was as honest an attempt as ever was made for the general good; but the many were willing to leave the work to the few, and some who should have been its friends stood off and threw stones. [This all goes to show that heavy advertising alone will not sell a poor product. It is possible and even probable that the glucose people saw the impending legislation that we now have, and wished to test out the proposition whether glucose could be sold under its real name. I do not believe the dear public objected to the name "Karo" or corn products, but that it preferred to pay a little more money and get something that had a real flavor and sweetness to it.—ED.]

ABBE PINCOT, in a long article in *L'Apiculture*, shows that bees build cells according to the varying sizes of the bees, the diameter of cells built by Italians having been 10 per cent greater than those built by degenerate blacks; that increasing the size of cells increases the size of bees; that the increase is not in the thorax, but in the abdomen, giving larger honey-sacs and a larger amount of honey stored. If he is correct in these things should we not have foundation of a *little* larger size? How many cells to a given sur-

face has the present foundation, Mr. Editor? [There are 5 cells to the inch; but Cheshire showed that there were over 25 cells to the square inch, or approximately 27. Our own worker foundation is based on 5 cells to the inch, or as near natural comb as we can make it. I think it will run about 27 cells to the square inch.]

Referring to the question of the size of a cell, and its relation to the size of bees that hatch from it, Mr. W. K. Morrison, who is with us, states that, for the purpose of experiment, he spaced a lot of his combs $1\frac{1}{2}$ from center to center, instead of the regulation $1\frac{2}{3}$ or $1\frac{1}{2}$, as we find in nature. It had the effect of reducing the length of the bees hatched from the cell, something on the principle that a Chinese lady's feet are reduced in size by shoes too small for her. But Mr. Morrison thinks it would be unwise either to reduce or enlarge the cradles of baby bees. Too much development in too large cells might result in too many laying workers, he thinks. I do not know how that would be.—ED.]



THE glucose people are said to be "up against" 500 lawsuits in the State of New York on account of sugar sold to confectioners, grocers, and others, which did not meet with the requirements of the pure-food law.

WE have a larger amount of good copy on hand, awaiting publication, than we ever had before. I make this statement so that some of our friends who may be awaiting the appearance of their communications will understand why they have not appeared before. We are enlarging our journal again, and hope to catch up soon.

THE old reliable firm of Montgomery Ward & Co., of Chicago, advertise to sell only pure cane sugar. This is a very satisfactory thing in more than one sense, and it is a tribute to the spirit of the age, which demands "no substitution." When people want a pure article they ought to be furnished that article, and not a substitute. Some of us would like to know why Montgomery Ward & Co. dropped beet sugar and glucose sugar from their list of sugars.

ALGERIE, under French rule, is a good field for bee-keeping. The number of bee-keepers, according to the census of 1902, is as follows: Europeans keeping bees, 915, with 9289 hives. There are 24,000 native bee-keepers with 163,279 hives. Algeria re-

ports about 170,000 lbs. of wax per annum. Both the native Arabs and the Jews are said to be fond of honey, which may in some measure account for the athletic build and fine physique of these people.

BEE-KEEPERS residing in Southern California where the rainfall is small should make some inquiries about the Chilian algarrobilla, a shrub (*Caesalpinia brevifolia*), the pods of which furnish a very valuable dye-stuff. The chances are it would prove a very useful bee-plant besides. This offers a splendid opportunity for utilizing much wild land in this country. It is also probable that the algorobas of the Southwest can also be utilized in the same manner. Here is a chance for the Department of Agriculture, at Washington, to do the bee-keepers a great service.

LOSSES IN BEES IN EARLY FALL.

WE had been having several dark days, raw and chilly, when one day the sun shone out and it looked as if it were going to warm up. Thousands of bees thought so too and came out; but the air was so chilly that many of them could be seen scattered all over the ground on the sidewalks, numb with cold, so chilled they would probably never take wing and get back to the hive. It was too early in our locality to put the bees into the cellar, and consequently the bees of the 450 colonies at the home yard had a chance to fly if they would.

The loss must have been somewhat heavy; and yet we have days, quite a few of them, like this, all through the season—the same kind of days that bee-keepers all over the United States, south as well as north, have. It is these days that often do more damage than several days of actual zero weather.

THE EFFECT OF THE NEW NATIONAL PURE-FOOD LAW ON THE COMB-HONEY CANARDS.

WHEN the new pure-food law as given on page 1350 of our last issue goes into effect it ought to silence for ever the stories that come up every now and then about manufactured comb honey. Any newspaper or magazine should know that, even if it were possible to manufacture comb honey artificially, it would be risky for the venders to put the stuff on the market, for the reason that they would be up against heavy penalties and a possible jail sentence.

These comb-honey stories will probably continue to go on for a time, but the bee-keeper can now set up the argument that there is no such thing, because its sale would be against the law. When any "smart aleck" clerk in a grocery claims he has the two articles for sale, the real and the bogus, just tell him that you will put the United States officers on track of him or his proprietor, and you will find that he will get over his "smartness" instanter.

ON the front cover page of this issue will be seen a bee-keeper and his automobile—a sort of horseless-carriage outfit *en route* to one of his out-yards. He is equipped with saw, hammer, smoker, and his trusty rifle to shoot down a jack-rabbit or a stray coyote. Mr. C. F. Kinsie, of Riverside, Cal., the driver, does not say whether his automobile ever "exceeds the speed limits," or whether it ever "balks" as autos sometimes do. It is probably sting-proof.

THE SAN ANTONIO CONVENTION.

JUST as we go to press I learn that there was a big and enthusiastic meeting of the National in San Antonio. No general report has thus far come to us; but a brief statement has been received, to the effect that a proposed amendment, prepared by myself and offered by Pres. C. P. Dadant, excluding bee-supply manufacturers, queen-breeders, etc., from being eligible to office in the National, was voted down. I am under the impression that the members present thought it would be an act of discourtesy, in the presence of Mr. Dadant and other manufacturers who might be present, to vote otherwise. I should not construe it so, and I am sure Mr. Dadant would not. No manufacturer or dealer desires to hold any office in a honey-producers' organization; and I believe that, as a general proposition, not because there have been abuses, but because there may be, some such amendment should be incorporated in the constitution. The National is now as strong as it ever was before in its history, if not stronger. It does not now need the assistance of those indirectly connected with the pursuit as it did formerly. In saying this I do not see any reason why a bee editor or publisher, if he be not connected with the supply interests, should be barred from admission to the official family.

THE EFFECT OF THE NATIONAL PURE-FOOD LAW ON THE GLUCOSE INTERESTS.

WHEN the national pure-food law was passed by Congress it was probably as severe a blow to the glucose interests of the country as those interests ever received. I have been told they are now seeking outlets for their products in Europe, and well they may, for the demand for their glucose in this country is bound to grow less and less. As there are now heavy penalties against putting it in other syrups without plainly stating the fact, it would seem as if one great outlet for the stuff as an adulterant having been cut off, the demand would necessarily be very greatly reduced. I shall be greatly surprised if there shall not, in time, be a toning-up in the honey market by reason of the greater demand that will naturally take place for honey that is known to be such.

But the public has been fed on glucose mixtures for so many years, purporting to be honey, and supposed it was honey, it will take that same public some time to learn that real honey is both delicious and sweet. Glu-

ose has done more to disgust people with our product than almost all other agencies combined. They have gone to their grocer's and bought a mixture that was labeled honey, and got something else so vile that that one purchase would generally suffice for a long time. When a customer buys a package of honey after Jan. 1st he will be almost sure to get just what he asks for. If the honey is of good flavor he will want more.

When consumers finally learn what honey is, it is then that prices may advance to a point they have already reached in England and Scotland, where glucose has not been allowed to masquerade under the name of honey; for be it known that the best comb honey sells in Great Britain for prices considerably in advance of those ruling here; viz., 48 cts. per lb. This honey is not one whit better than ours, either.

QUEENS FOR EXPORT; MODIFIED BENTON V. THE ORIGINAL BENTON CAGE PURE AND SIMPLE.

MR. FRANK BENTON, of the Department of Agriculture, now on a trip around the world in search of new races of bees, was the first one to make any general success of sending queens by mail across the ocean. While in the Orient, and before he entered into the employ of Uncle Sam, he sent queens repeatedly to the United States that came in excellent order. Frequently the cages would come without a single dead bee; and, what was more remarkable, the attendants would arrive as bright and lively, apparently, as when they were just picked off the comb before entering upon the long journey of two or three weeks. So phenomenal was the success of these cages that some years ago we adopted the form of the cage *but not the precise model*. For the purpose of giving inspection the Benton shape was adopted, but covered with wire cloth, and on top of this was placed a wooden cover. This was practically all the change that was made, and for domestic purposes the cages so modified seemed to give perfect results; but when this same cage in larger form was used for export to Australia the queens sometimes got through alive, and sometimes would be dead, including all the bees. In explaining this matter to Dr. Phillips, acting in charge of apiculture, he inquired why we did not adopt the original Benton without any modification. He said the Department was having uniformly good results with the old cage as first put out. He further gave it as his opinion that the wire cloth intervening between the wooden cover and the cage in the Root-Benton model, so far from being any particular advantage, was a positive detriment. After this conversation I determined to test the matter, especially with one or two cases where we had failed in getting delivery alive in good order. We accordingly went back to the exact form of the original Benton, without an iota of modification, put up a couple of queens, and sent them on. The two reports are just now in, showing

that both queens in both cages arrived in perfect condition, bees bright and lively, cages clean, and only one bee dead. Queens were sent out during our unusually hot weather in July, and went through in the condition stated.

Of course, one swallow or two of them do not make a summer; but in view of the splendid success of Mr. Benton when he was in Europe, and later of the Department of Agriculture, with the same cage, it would seem as if, for *export* work at least, the original Benton, pure and simple, would be the thing to use.

I might explain two or three conditions necessary for success. First, the candy must be made right—not too soft nor too hard. The candy-hole must be thoroughly coated with beeswax or paraffine; then when candy is pressed into place it must be covered with a sheet of thin wax or foundation. A plain wooden cover completes the equipment. This is nailed down perfectly tight, without any wire cloth between it and the cage proper. There is absolutely no ventilation save a few awl-holes piercing the end compartment of the cage, all the rest of the cage being practically air-tight.

SOME OF THE GOOD THINGS THAT GLEANINGS WILL HAVE DURING THE REST OF THIS YEAR AND A PART OF NEXT.

We are already at work on our Christmas issue of *GLEANINGS*, which will be fully the equal of the one we put out a year ago, and in some respects very much superior. It will be very profusely illustrated, and at the same time be filled with the usual grist of good matter.

In our previous issue I referred to the fact that we are soon to begin the publication of that valuable paper by Dr. von Buttel-Reepen, entitled "Are Bees Reflex Machines?" While not all bee-keepers will agree with the conclusions of the author, perhaps, the paper will serve the purpose of stimulating discussion and a more thorough investigation into the mysteries of a bee-hive.

We have engaged Mr. J. E. Hand to describe his non-swarming system for the production of comb honey with his divisible brood-chamber hive as he has modified it. He will not only describe the method and the hive, but tell *how* to make every section, or nearly every one, fancy. Last, but by no means least, he will explain how he is able to control swarming, and at the same time increase his crop.

Over twenty years ago the merits of the divisible-brood-chamber hive were exploited in all the bee journals. A good many were attracted to the hive, and some have during all of these years continued to use it. Others have dropped it in favor of the standard Langstroth. Among the former is Mr. J. E. Hand, who has not only used it with satisfaction, but believes he has so far perfected it that it leaves every thing else behind in the race. So enthusiastic is he after a thorough test that he firmly believes he has a better system of controlling swarming and securing

a larger percentage of fancy comb honey than has ever before been published by any journal. The outlines of the plan have been given to me, and I am convinced he has something that should merit the attention of the whole bee-keeping world.

Mr. E. W. Alexander has in preparation a continuation of his series of interesting articles. We sent our correspondent, Dr. Lyon, to his place with his camera last fall, and while there he secured a fine lot of photos which are now in the hands of Mr. Alexander. This means that the articles will be well illustrated. This series will be fully as interesting and valuable as those published during the past year, if I may be permitted to judge by the advance copy in hand.

Our funny man, the Jay, has a lot of interesting matter which we now have in hand. Don't get the idea that it will be merely funny, for the Jay is a practical bee-keeper, who, like Josh Billings, has learned that "egsperience teeches a gude skewl, but the tuishun comes pretty hi." A part of the Jay's writings especially will be the recounting of his mistakes when he did not know as much as he does now.

All our department editors so far as we know will continue their work as before. We also have in hand a lot of valuable articles on various topics which we hope to print later on when the season for their appearance arrives.

But this is not all. We have already secured an exceptionally fine lot of photos of interesting bee subjects. Some of them are snapshots of methods showing just how to work bees to the best advantage; others are views of bee-yards, the arrangement of which are either artistic or show some novel or helpful idea.

In this series will be some photos taken by the editor, showing some experiments made with the Aspinwall non-swarming hive. By the way, this hive has been given a severe test, but it showed no disposition to cast its swarm nor even build cells.

Dr. Miller has, during the fall, been using a camera to illustrate some of his new kinks. With the aid of this he will take the reader into his apiary, and give him a heart-to-heart talk on how he gets his crops of honey. These articles will be in addition to his regular department of *Stray Straws*.

It will be impossible to set forth fully the fine array of matter that will appear in *GLEANINGS* during the next year. Now that we have an effective national pure-food law, *GLEANINGS* believes that a bright future awaits the bee-keeping interests when the public can be fully assured that, when it buys honey, it is buying the real article and not something that masquerades under that name.

ON page 1171 I referred to the exhibit of bees and honey by M. H. Hunt & Son, at Detroit. We have since secured a photo, and on p. 1439 present the same to our readers. The exhibit as a whole attracted a good deal of attention.



Count me on the side of spelling reform. I should like to see GLEANINGS, and, in fact, every other magazine and newspaper, adopt it. It is evident that our present absurd spelling must be reformed in many respects. We have already done a great deal in that direction; and the only question now is whether the reform shall continue gradually, as in the past, or whether we shall take a sensible stand and sweep away at once a lot of the worthless excrescences that disfigure our language.

My experience with the Alexander plan of putting a weak colony over a strong one in the spring has not been very encouraging, though I am not ready to condemn the plan. Generally the queen above soon disappeared, though sometimes it was the other way. The first time I tried it, it made me smile when I opened the hive, ten days after uniting them, to see how prosperous the upper nucleus looked, plenty of brood and bees, and the queen "just humping herself" laying eggs. But when I looked below I found neither eggs nor queen, and the smile vanished. Since then my experience has been varied, but on the whole unsatisfactory.

RIPENING COMB HONEY.

The way of piling up supers shown on p. 1247 is not new. Heddon told us how to ripen extracted honey that way fifteen or twenty years ago, and many bee-keepers pile their supers that way. Its disadvantages are that they are not dust-proof nor mouse-proof, and that they take up a great deal of room, which most bee-keepers do not have to spare in their honey-houses. Dr. Miller's way is better, though it takes more time.

For several years I was bee-inspector of Mesa County. I resigned this position last spring. I had not considered the matter of sufficient importance to chronicle in these columns before; but so many of my correspondents consider me still in that office that I make this announcement. During the three years that I filled the position I felt that I was not able to do full justice to it on account of lack of time, even though I employed several assistants whenever practicable. A bee-inspector, under the conditions that obtain here, should be able to give his whole time to the work if necessary. In this county, about the size of the State of Delaware, with its thousands of colonies of bees, and with localities in which foul brood has been rampant for a number of years, an inspector

should have no other occupation during the summer. Accordingly I resigned in order to be able to give my whole time to the more pleasant and profitable business of looking after my own bees and other interests. Mr. H. S. Groves, of Fruita, is my successor.

SUPER-ELEVATORS.

The use of hoisting machinery of some kind in connection with bee-hives is bound to become more general, and will prove to be a great boon to the bee-keeper, especially to the one who produces extracted honey and practices tiering up. Any one who has lifted off supers, and then lifted them on again all day on hives that are tiered up four or five stories high, especially if the supers are of the ten-frame Langstroth variety, will agree to the desirability of something of the kind. W. Z. Hutchinson, in the *Review*, mentions and illustrates a contrivance of his own for lifting supers enough to place a bee-escape under them. It is true that Doolittle has told us how to do this without actually lifting the whole weight of the supers, but it would be much better to lift them clear if it can be done without too much time. Some of the wagon-jacks in common use could be easily modified to do this work, and it is possible that something of the kind could be made so as to lift them high enough to put a super under. If this could be made to work, it would not be so cumbersome nor require so much operating room as the tripods and other hoisting devices that have been illustrated.

LONGEVITY OF BEES.

I agree with the editor on the subject of long tongues, and in the main with Mr. Crane on page 1172 on the importance of strength and endurance of the worker bees, but I do not think he puts sufficient stress on longevity. The working life of the bee is so exceedingly short that a very little addition to it counts heavily, both in the building-up of the colony for the honey harvest and in effective work during the yield. In the latter way it is important even where the flow is of short duration, but immensely more so when the honey-flow is of long duration. In selecting a breeding queen, if I could be assured that her bees would live even four or five days longer than the average, I should count that point very strongly in her favor. It is true that Mr. Crane considers longevity, for he says that greater endurance means longevity, but I think they should be more separated. If I were to place in the order of their comparative importance from a honey-producing standpoint only, the most valuable traits to be considered, they would be about as follows: 1, industry, or vigor; 2, longevity; 3, strength of constitution, or endurance; 4, prolificness of queen; 5, length of tongue. It will be noticed that I do not give prolificness as high a rating as many would be inclined to. My favorite breeding-queen for several years was not especially remarkable for prolificness, but she was al-

ways on hand with a hiveful of workers when there was honey to be gathered, and I laid it to their unusual longevity.

LENGTH OF BEE-FLIGHT.

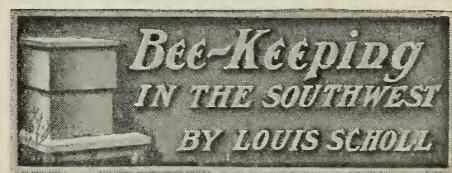
On p. 1172 J. E. Crane says that, by moving his apiary two-thirds of a mile, his yield was greatly reduced; but that by breeding for bees with stronger flight he was able to overcome largely this handicap. While he may be entirely correct in this, I believe he may be assuming a little too much in both directions. In the first place, does he really know that it was the change of location that reduced his yield temporarily? Locations vary greatly from year to year. For instance, my home apiary has usually given fair and sometimes very good crops. In the very poor season of 1905 it averaged better than any other apiary in this valley that I have any knowledge of. In 1906, with only about half as many colonies on the range as usual, it gave a very poor crop compared with some of my other apiaries. His reduced yield, followed in later years by better ones, may have been simply the variation of seasons. However, if he knows the pasturage in his old location to be better, I will venture to say that the establishment of an out-apiary in that direction would have paid him far better than to attempt to get along with a poorer location, though only a short distance away. The more I have to do with out-apiaries, the more I am convinced that the most profitable work of bees is done within a very short distance, say not over a mile and a half, probably even less than this, from their hives.

THE ONE-POUND SECTION.

Mr. G. C. Greiner, in his article on one-pound sections, on page 1238, deserves credit for at least one thing. It appears that he has actually tried, with a number of years' experimenting, to find a section that would hold a pound of honey. Let us see with what results. He tells us that his light cases weigh 22 lbs. and his heavy ones 26 lbs. There is, then, a difference of $\frac{4}{5}$ or $\frac{1}{6}$ of a pound between the average weights of sections in the light and heavy cases. But this is not all. It is fair to assume that some of the sections in the 22-lb. cases are lighter than the average of $\frac{3}{2}$ of a pound each, and that some of the sections in the 26-lb. cases are heavier than the average of $\frac{2}{3}$. It will be readily seen, then, that the difference between his lightest and heaviest sections of marketable honey (for he does not call his light-weight honey culls, nor speak of it except as honey by the case), may easily reach $\frac{1}{2}$ of a pound or more. And yet he calls them "pound sections"! He applies the name of a fixed, invariable standard to articles the heaviest of which vary more than 25 per cent from the lightest! Further comment on this point would seem unnecessary.

Mr. Greiner thinks that, because his light cases weigh 22 lbs., his medium ones 24 lbs., and his heavy ones 26 lbs., he is entitled to call his sections "pound sections." It may

appear at first glance that they average 24 lbs. to the case; but do they really do that, Mr. Greiner? Are there not some seasons a greater number of the 22-lb. cases or of the 26-lb. cases than at other seasons? Furthermore, would not some other bee-keepers, using exactly the same sections, get quite different weights? Bee-keepers who sell "pound sections" ease their consciences by the thought that they *average* all right. But they should remember that this average does not extend to the consumer, except in the long run, and does not meet each particular case. As long as no section furnishes the consumer an exact pound of honey, or can ever do so, and since 99 per cent of the sections in use, or that are likely to be used, do not come anywhere near it, I think it would be only honest, as well as to the advantage of all, to discard entirely the expression "pound section." It is unnecessary to enter into any long-winded explanations with the customer who asks for a pound of honey. I simply say that I sell it at so much a box, but that the boxes do not weigh a pound. It is very seldom that any thing further is necessary. Instead of chasing the impracticable idea of a pound section, devote your energies to the production of sections as uniform in weight as possible. The four-pound variation in cases that Mr. Greiner admits is quite inexcusable. About 75 per cent of my honey, just as it comes from the hives, will not vary over a pound to the case, and a two-pound variation will cover the extremes of the remainder.



Chilly blasts in terrific whistle
Come soaring and a roaring
Around the eaves of our hives;
And blooming flowers and thistle,
Gone and dead, for death, instead,
Has given flight to these tender lives.

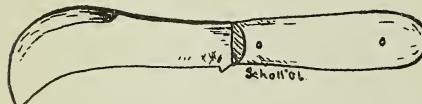
A season is ended and o'er,
And toiling and turmoiling
Give place to days of sleeping,
And waxen cups with golden store,
Gathered with care, are garnered there
For wintry days that come a creeping.

Blood will tell if you give good care to the blood. This has shown itself more plainly this past poor season than during any previous seasons of average and good honey-yields. Colonies with "those good queens" yielded from 40 to 100 pounds of comb honey, while the others gave little or no surplus. Several yards that were bought in the spring had a great majority of old worn-out queens in them. The result was, very little or no surplus honey except from a few colonies that chanced to have a young prolific queen.

My honey crop could have been doubled by simply requeening the entire outfit of some 350 colonies. This was not through the fault of the writer, however. The spring months were very unfavorable for such work, and for queen-rearing, and a serious illness prevented the requeening this fall; but the proof of the good queens has been so convincing that preparations are already begun for queen-rearing as early as this may be practical next spring, to be followed by a wholesale requeening of all my apiaries. Beginning with *all* new queens it will be easier to "keep track" of their "doing," and the improvement of stock will follow through both selection and breeding.

A HANDY HIVE-TOOL.

For several seasons I have used a stout pruning-knife with a "hawk-bill" blade as a hive-tool in my apiaries, and have found it to be the most satisfactory and handiest tool for the greatest variety of purposes of all the many tools tried.



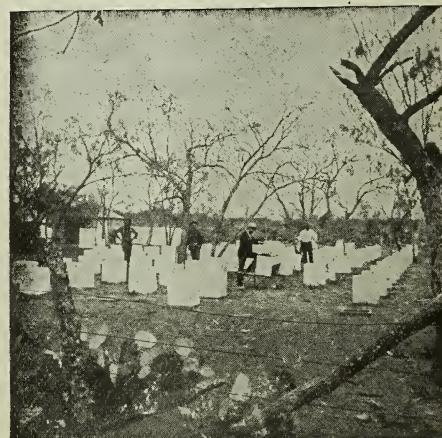
The entire length of the pruning-knife is about 8 inches, and it is very stout in its make-up. The blade is made of good steel, and retains a sharp edge, while the back of the blade is about $\frac{1}{8}$ inch thick. These knives are advertised with other horticultural tools, and can be obtained of most of the large hardware stores. The blade of the knife above is made of one continuous piece of steel. Mr. W. H. Laws, of Beeville, Texas, used a knife similar to this while I visited him several years ago. His knife was not as heavy, and the blade was made pocket-knife style, and could be closed. This made it handier to carry in the pocket; but the objection was that prying hives and frames caused the blade to work loose in its "joints." This weak point, in addition to being more expensive also, makes the knife without the joint, and the consequent lower price, a more satisfactory hive-tool. It can be carried in the hip pocket with ease, having the handle downward; in fact, the hip-pocket is the most handy "hive-tool bag" I know of—the most convenient in reach at all times.

This knife is excellent for prying hives, frames, and any thing else apart; also for opening boxes or taking off covers or bottoms that have been nailed on. It is sharp, and can be used for cutting at any time, the same edge being used for scraping frames, etc. It is also the handiest small tool for cutting away weeds in front of the entrances of the hives. A few slashes at the same time the few puffs of smoke preparatory to opening the hive are given, leave a clean door-yard—something more essential during a honey-flow than most of the craft might suppose. For cutting or hacking off limbs of trees that are in the way, this pruning-knife

works finely—just what it was originally intended for. Nailing can be done with the blade, its weight permitting of driving even large nails. The back end of the handle is rather flat, round, and smooth, and is used in emergencies for fastening foundation in frames, especially when such has accidentally torn loose in handling, or when pulled off by the weight of the bees.

"CHEAP AS DIRT" BOTTOM-BOARDS.

Preparing for another season means getting new supplies as well as having the bees in good shape. Bottom-boards of different styles have been given a fair trial in my yards; and in preparing for the establishment of several new out-yards this winter the bottom-board question is uppermost in my mind just now. I want to fix up one of the yards with dirt floors. These are used by S. T. Gilbert, near Uvalde, Texas, and please me. A rim is made of common rough three-inch stuff, just the outside dimensions of the hives in use. The end of these rims intended for the front of the hive is enough lower at the top to allow an entrance; that is, the back end and side pieces are nailed together with their top and bottom edges flush, while the front end pieces are lowered about $\frac{1}{2}$ inch, so it extends beyond the lower edge of the rest of the rim. In this way the same three-inch lumber can be used throughout, saving the dressing-down for entrances, as the rims are slightly sunk into the ground when in use. When in place where the hives are to stand the rims are leveled off and then filled nearly to the top with loose dry soil. This is packed down firmly by means of a wide board fitting inside the rim, and tamped upon with a heavy tamper until the surface of the soil is even with the front edge of the rim forming the entrance to the hive. Some more loose dirt can now be thrown in front of this stand, and tamped down to make a sloping "alighting-board" to the entrance.



This photo shows one of Mr. Gilbert's yards with dirt floors. One of the rims can

be seen in the front row. Some of these floors had been covered over by the bees with propolis, so that none of the soil was exposed to view, making them absolutely water-tight from below. Where the yards are well drained, the soil inside the rims, when the hives are in place on them, never becomes moist, especially as this soil is several inches above the surrounding earth outside. For a permanent bottom-board or floor this should be a cheap one.



BEES AND GRAPES.

A bee-keeper from Pomona writes me that his bees are complained of as a nuisance, it being asserted by the complainer that they are eating his grapes. Beekeeper wishes to know what are the equities in the case. I think it is well known to all who are conversant with bee literature that there have been several lawsuits, some of which have been carried to the higher courts, in which the litigants have been bee-men versus fruit-men. In every case, so far as I know, the cause of the bees has triumphed.

This is as it should be. I am very sure that the bees never puncture any fruit if the skin is unbroken. Let bird or wasp break the peel, and the bees are quick to discover the wound and save the leaking juice. I feel quite certain that, in case of over-ripe grapes, the fruit itself may rupture, after which, of course, the bees will do their part toward saving the loss. I have tried many experiments along this line. When bees have been working on grapes or other fruit I have taken clusters of fruit not yet attacked, pierced certain grapes with a needle or pin, marking the same, and leaving others sound. The bees would swarm on this fruit, but never molest that which I had not pierced. I have shut bees in the hive till they were ravenous with hunger, placed grapes in the hive, some of which were pierced, or punctured, and some not. Of course, the bees would at once suck the wounded grapes dry, but would never do any injury to others. It has seemed to me from these experiments that the bees must have the odor of escaping juice to lead them to attack, and, as in the case of sound fruit, they have not the peculiar odor.

A SIMILITUDE.

There are two products which have much to do in our daily life that have a close resemblance in more than one respect. I refer to butter and honey. Both of these substances belong to the hydrocarbons. That

is to say, they are composed of the following chemical atoms: Oxygen, hydrogen, and carbon, and are different from the proteids in that they never contain nitrogen. There is another peculiarity which both these substances have in common. They can be produced and sold with no impoverishment to the soil. The reason for this is obvious. The plant which gives the material from which they are derived procures this material entirely from the air and water. Thus none of the soil elements are used in this production. These substances also differ from the proteids in that they have a definite chemical composition, and also differ from the inorganic elements in that they owe their existence to previous organisms. There is another point of similarity: both of these substances are exceedingly valuable as food elements. We must have fats or we can not preserve life, and there is no better fat in all our food than the butter fat. In like manner we must have sugar or we can not live. I believe that, of all the sugars that enter into our food, none are so entirely safe and wholesome as honey. I think it behooves every householder to procure for his family the very best of butter and the very best of honey, as a very valuable if not necessary part of his food regimen.

UNRIPE HONEY.

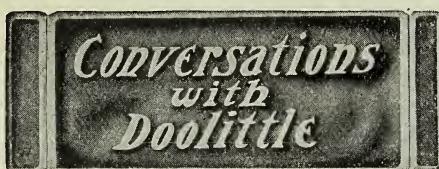
I wish to thank the editor of GLEANINGS for his correct representation of my position regarding the extracting of unripe honey. For many years, while I had charge of the Michigan Agricultural College, we were in the habit of extracting our honey before it was completely ripened. The advantage in this was that it was so much more easily extracted, and it saved the necessity of uncapping. We were fortunate in having a honey-house without garret and with only one layer of boards for sheeting. As we kept this closed it became very hot for days together all summer through. As we kept this honey in closed receptacles with only thin cloth above it, it became very thick, and I never heard any complaint regarding its excellence. One day, however, I happened to be in Chicago, and was taken by Mr. Newman into his wareroom where I beheld a most interesting sight. A barrel of unripe honey had fermented, the barrel burst, and the honey was scattered all about the room, even smearing the ceiling. Since that I have always advised a delay in extracting honey until the bees had it well capped over. This is wise for two reasons: We all know that thin honey is liable to ferment, and this, of course, means ruin. No one can afford to run any risk that may result in such catastrophe. Again, I believe that honey never reaches the very acme of excellence until the bees cap it over. While we certainly may, if we are always sure to take sufficient pains, procure good honey though we ripen it by artificial means, yet I greatly question if we can ever secure the very best by this method. It should be the aim of every bee-keeper to produce only the best. And thus I would

not only practice, but urge any whom I might influence, never to extract until the bees have capped nearly or quite all the honey.

HIVES OPENING AT THE ENDS INSTEAD OF
AT THE TOPS.

One of the most delightful days that I spent in Germany was at the apiary of our old friend Schultz, of sugar-candy fame. I found a man of rare intelligence, and quite wonder-derful for his ingenuity.

I was interested to notice that, like most of the German people, he used hives which opened only at the ends. It is so awkward to take the combs from such hives that I could not but wonder that any bee-keeper who had ever read a description of the Langstroth hive could think for a moment of us-ing these awkward German hives. Mr. Schultz lived in one of the most beautiful parts of Germany, and the vegetation about his place adds materially to the charm of the landscape. He values very highly the honey-locust and *Phacelia tanacetifolia*. This last is introduced, and of great value.



THE PLAN IN THE SOUTH.

"Is this Mr. Doolittle?"

"Yes."

"My name is George W. Weingart, and I have come from Mississippi (by letter) to ask you a few questions about your plan of working bees as given in your serial, 'A Year's Work in an Out-apiary.' How do you think the plan would work in the South—especially in my State?"

"How about your source of nectar? Does it come in a few weeks, or is it a slow con-tinuous yield for months?"

"About all the honey we get comes from wild flowers in 'Honey Island Swamp,' and the yield begins about March 15 and ends about May 1; but while the yield is on, it is often immense, in good seasons, nectar com-ing in with a rush during that period."

"Under such conditions the plan should work as well in your State as it does here in the North, providing you have favorable weather for colonies building up for six weeks previous to the time the honey har-vest commences."

"I think there will be no trouble along this line, as I judge our weather is as favor-able in February as is yours in April."

"This being the case you should succeed as well. But you will need to begin your work in laying the foundation for success as

early as the first of February, timing your work from them on in about the way I have given for this locality, though you may be able to have the bees become strong in num bers in less time than we, because I judge you are not subject to as many cold north and northwest winds during your early spring as we are. These cold, searching, blasting winds are the great drawback to a rapid building-up of our colonies here in the central part of New York."

"I think I shall have no trouble with this part of the matter unless you think of some modifications I should use, different from what you gave in the plan as you went along."

"If I were in your section of country for a year I might see that some change or changes would be necessary; but from this distant standpoint I do not think of any now. You can tell after a little if some improvement can be made that will be more suitable for your section; and if you think there can, try the matter with a part of your colonies, working the rest as I have given, and the results will tell you whether your supposed improvements are really improve-ments or not. I always feel at liberty to vary a little in using any plan with a part of my colonies where I think a gain can be made by so doing; and after a trial, if a gain has been made, then I stick to this gain. If no gain is the result, then I adhere to the plan as given. And I always advise others to work in the same way, as you may hit on something I or others may not, and thus our pursuit will be advancing instead of standing still. If no one 'branched out' for improvements the cause of bee-keeping would not be further advanced fifty years from now than it is at this moment."

"Thank you for the suggestion. I will 'keep an eye out,' as you suggest. But will your plan work with eight-frame hives?"

"Yes, it will work with such hives; but the prospect for succeess is not quite as good with such hives."

"Why not?"

"For the reason that such hives do not usually contain honey enough in early spring so that the bees feel rich toward large brood-rearing; and where they do, they do not have a sufficient number of cells in the eight frames, outside of those filled with honey, to give the room for brood that they have in a ten-frame hive. Then, again, after the queen-excluder is put on, so that the honey is in the upper hive, there will be only eight frames below for the queen to keep full of brood; and, surely, these eight frames will not give the brood that ten frames will."

"I think I can see that."

"Yes, and the whole success of the plan lies (the same as does all successful honey-production) in having a multitude (a *great army* if you please) of bees on the stage of action just when your harvest is at its best; and you can not have as large an army of bees from an eight-frame hive as from a ten-frame. So far as I can find out, those who

have had only indifferent success with the plan have been those who have failed to bring their colonies up, with numbers to overflowing, at the time of the honey harvest. Failing here is to fail with any plan, and especially with this one. The *multitude* of bees coming with 'millions of honey at our house,' at just the right time, and the honey *at our house*, and that coming from the fields when the shook swarming is done, is the secret of the rush of honey into the sections during the rest of the season following. With a much poorer season than last year, and, added to that, sickness just when I should have been with the bees, my average yield of section honey from each colony worked by the plan this year has been 105½ pounds. Do not forget that a colony of 60,000 bees, with no desire to swarm, will store for you a whole lot of surplus honey, while a colony of only 20,000 to 30,000, and those with a desire to split up through swarming, will yield their owner little or nothing; and the ten-frame hive looks more nearly toward the 60,000 than does the eight-frame."

"I think I see the point. But how will the plan work for extracted honey?"

"The plan is all right for extracted honey up to the time for the shook swarming. There is no need of that where working for extracted honey."

"How is that? Please explain."

"There should be little if any trouble from swarming when working for extracted honey."

"But bees do swarm where so worked."

"Where they do, it is generally through failure to work them as they should be."

"How should they be worked?"

"Just as I have told, up to the time of shook swarming. Then, instead of shaking them, raise half of the brood to the upper hive, putting frames of empty combs in the place of those raised, and over all put the third hive filled with empty combs; and, later on, if more room is needed, put on the fourth hive containing frames of empty comb, putting this on top of all. My experience tells me that not one colony in twenty-five will offer to swarm if treated in this way."

"When would you do your extracting?"

"At the end of the season, where the season gave only one grade of honey. If more than one grade, then I would extract at the end of the white grade and at the end of the dark grade. Mixed honeys do not sell very well."

"Just one more question."

"All right. Go ahead."

"Is the plan as likely to prevent swarming in a good flow as it is in a good season, as you report the past two have been with you?"

"Yes, and more likely."

"How is that?"

"Nearly all bee-keepers have had the experience of a season of prolific swarming being stopped almost immediately by the commencement of a very heavy flow of nectar.

With a honey-flow which is good enough to give a yield only a little greater than what is consumed by brood-rearing day by day, bees take on the swarming fever as never else, as soon as the hive is full of brood; but with an immense flow of nectar the whole trend of bee life is turned toward securing stores to such an extent that they seemingly think of little else, and especially where they have enough empty comb to store such a yield. They have this space in the upper story, with the plan I have given; and at the time this is filled, or previous to this, they are shaken from their brood, so they find themselves on their frames of honey, or in their own home without brood to speak of, with plenty of storage room in the sections, and thus all desire for swarming is given up, if such desire has reached them, which, usually, it has not."



HOW TO GET BETTER PRICES FOR EXTRACTED HONEY.

A Method for Producers of Every Class.

BY E. D. TOWNSEND.

The editorial, page 1233, 1905, where I am compared with Dan White as to my success as a salesman in retailing 20,000 lbs. of extracted honey at 7½ cts. per pound, prompts me to say a few words. In the first place, 7½ cts. is altogether too low a price to retail honey at, even if one could buy at the extremely low price of 6 to 6½ cts. for the best white, as some have sold for this year. In this case one would have to get at least 10 cts. at retail, and perhaps 12 in some cases. No, we did not peddle any honey around home. Although some went to consumers, I presume 95 per cent went direct to bottlers and honey-peddlers. My 1905 crop went as far east as Maine, west to Kansas, and south to the Virginias. There is no doubt in my mind that Dan White has worked out the best system of retailing honey at home where one has the ability, and a territory that is suitable to work up such a trade; but with me, for several reasons, the territory is not suitable. My time is worth more otherwise, and I have neither desire nor ability to retail honey; in fact, fully 75 per cent of the honey-producers have no ability as peddlers. It is for this last large class I am going to give a few figures, then describe the best plan in existence (my estimation), where one desires to dispose of his crop in a wholesale way. Now for some

figures, and I do not think I can do better than give the amount I produced, and price I received for my 1905 crop. It is as follows: 8520 lbs. No. 1 clover extracted, at 8 cts., \$681.60; 4920 lbs. No. 1 raspberry extracted at 7½, \$369; 2880 lbs. No. 2 clover and raspberry at 7, \$201.60; 2000 lbs. buckwheat extracted, at 6, \$120; 2317 lbs. No. 1 and fancy comb honey, at 15, \$374.55; making a total of \$1746.75 from 300 colonies, spring count, and an increase of 150 colonies.

You will notice this crop is not large for so many bees; but by the system of selling I am about to describe, in connection with a superior article of honey to sell, the results are fairly satisfactory. By cutting out commission men, and middlemen to a certain extent, I figure I have saved about 25 per cent on this crop. This system of selling was first published in the *Review* for Oct., 1904. It is as follows:

THE "EASY" OR COMMISSION METHOD OF SELLING HONEY.

Let us first consider the commission method of disposing of our honey. This might be termed the *easy* method. All we have to do is to can or crate, if comb honey; nail on the tags (the commission man furnishes them), deliver to the depot, and *our* part of the work is done; then, some time, we will receive a check. Easy, isn't it? Let us figure a little. It is estimated, and I have never seen it contradicted, that if comb honey sold through the commission man brings 14 cents a pound, the freight, cartage, and commission will bring the net price down to about 10 cents for the bee-keeper. Now, we have some customers who will give us a cent a pound more than the regular quotations for our honey *on board the cars here*. We do not suppose our No. 1 comb honey is very much better than the commission house, No. 1, but these people say they know what ours is, and are willing to pay the difference. Now, it is not a very difficult matter, with these figures before us, to figure a nice profit by selling it ourselves. The difference between 10 and 15 cts., or 50 per cent on the deal, is worth looking after. There is, however, a class of bee-keepers who will always patronize the commission man. They do not care to go to the trouble of looking up customers. They would rather take less, and have some one else do the work; so the commission man is here to stay, and fills a niche we can ill afford to dispense with. The above might be termed the *low-price easy* method.

THE METHOD WHEREBY BEE-KEEPERS GET THE BEST PRICE.

The second method of disposing of one's honey, direct to the consumer, is available with only the few that are located near the large cities, or otherwise favorably located, where honey brings a good price. They must have a little tact, and ability as salesmen, then put up their honey in small packages for home or grocery trade.

These bee-keepers realize the top of the market for their honey. They may be called the favored few who get the *best* price for their honey.

CUTTING OUT ONE MIDDLEMAN AND IMPROVING THE GENERAL MARKET.

The great majority come on the last list. They are, perhaps, a long way from market. After they have taken pains to produce a crop of fine honey, and if it is the best grade of extracted honey for table use, it is put in 60-pound cans; if dark in color, or "off" in flavor, so it must go to the baker, perhaps barrels are best. If it is comb honey, case it up early, and be honest in grading. If there is any question in your mind about a section grading No. 1, put it in No. 2. Make each grade a little better than your competitor's. Don't think for a minute that you will not get paid for it. You see, we are going to try to tell you how you can get a good price for your honey, and, at the same time, build up a reputation that will never leave you. "Once a customer always a customer" should be your motto in all your honey deals. Produce a good article, put it up in good shape for the market, then last, but not least, *ask a good price for it*. Of course, if you get your price too high it may sell slow—

perhaps so slow that you will have to lower the price before it will move; but before you lower the price do a little hustling. We will suppose you have been letting some one else sell your honey for you in the past, but have decided to change for the better-price method. You are not acquainted with the honey trade, and you will need the addresses of the manufacturing druggists, the honey-bottlers, and then there is the baker. Your local druggist can likely furnish you the addresses of the druggists, and your grocer those of the bakers, and the bee journals reach probably all of the bottlers, and most of the bakers and druggists, so a little notice there will likely bring you orders.

DON'T CHARGE FOR SAMPLES.

You will need some sample mailing-blocks, as most of them buy extracted honey by sample. A sample block and postage will cost you about 10 cts., each sample you send out, and there will be a temptation to charge for this sample. Don't do it. You want to place a sample in every dealer's hands who is interested enough to ask for it. The few that order samples out of curiosity will not amount to over 5 per cent, so this element is not worth considering.

Instead of charging for our samples we figure to get our pay out of the advance price we receive for our honey. We have been making a little mental calculation, and have come to the conclusion that we received about \$15 each for the samples sent out last year, above what would have been received had we sold our honey through a commission house at the market quotations.

CAUTION TO BE OBSERVED IN SHIPPING.

We will suppose the orders are beginning to come in. A few of the small orders will be accompanied by money to pay for the honey. Then there are others that you know by reputation, that you will ship to without money in advance. The probabilities are these known dealers will simply say ship so and so, depending on their good name as sufficient security. Thus far every thing has worked lovely, but you will probably receive orders from parties that are perfect strangers; some of them will furnish references.

Just a word now in looking up these references. Do not fail to enclose a self-addressed stamped envelope, and leave margin enough below your inquiry for their reply. If, after looking them up, you conclude they are all right financially, you can ship them. But if you have any doubt of their integrity, or if they do not furnish reference, the better way will be to ship C. O. D. Then there are others who prefer to pay on delivery; so it will be well to describe this method of shipping goods. It might be added that this plan is used very extensively in the commercial world. Generally it is as follows: The railroad company that we ship over furnishes us blank bills of lading. Under the head of "marks, consignee, etc." we write "to order of E. D. Townsend, St. Paul, Minn., notify Paul Jones, 304 Short Street." Now, after the railroad agent signs it we make out our bill for the honey, pin this shipping receipt to it, then take it to our banker, and have him draw on Paul Jones for the amount. As the honey is shipped to ourselves, Jones can not get it without this shipping receipt; and as he has to pay the bill for the honey before he can get the receipt, we are perfectly safe. All the risk we run is the possibility of his not taking the honey, and causing loss in freight unless we can find a customer for it there. If there is no bank at one or the other end of the route, there is always an express agent where there is a railroad depot, and he will do your collecting the same as the bank. Whichever way we ship when sending our bill to Mr. Jones, we tell him through which bank or express company of his city we have drawn on him. I might add that, in all the honey we ever shipped in this way, there never was a lot refused. You see, there is no object in anybody ordering honey unless he wants it; and, if we always sell by sample, we have no trouble about the quality of honey. The fact is, we have had such good luck shipping this way that we never hesitate whenever requested to do so, without *any* money in advance, as some require.

In conclusion let us repeat, produce a good article; have your white honey ready for the market not later than August 15; be honest in your grading and weights; don't try to deceive your best friend, your customer, by trying to work in a few sections of No. 2 with No. 1. It might be tolerated once, if it were a small shipment; but next time, when you offer him more, he will quite likely offer you a No. 2 price for what you call No. 1.

Remus, Mich.

GOVERNMENT LEASE OF BEE TERRITORY.

Is this Possible? Some of the Difficulties that Such a Plan Would Lead to.

BY R. F. HOLTERMANN.

On page 991 J. A. Green hopes that governments will take possession of all bee territory as something separate from the land and lease, or sell it by itself. I have a large number of colonies, and keep them in fairly good shape, and could probably pay as much for the right as any one. Personally, it suits me exactly. When we look at it from a broader standpoint, however, would this be right? If it is true, and we know it is, that bees are so valuable for the fruit garden and orchard, the vegetable-grower, the clover-seed and buckwheat grower, are they who produce the nectar to have no recognized rights? For them, the more bees the better. Is this not a proposition to curtail the work of the bee to the advantage of one who does nothing to produce the nectar, and the disadvantage of the one who should primarily be consulted? If I have ten colonies of bees, other things being equal I can pay more than the man who has one, and yet these ten colonies may not be any thing like the number of bees that could give the best results to the producer of the nectar.

When it comes to saying what number of colonies shall be kept upon a square mile, and restricting their flight, who shall decide this number? and what a difference in square miles! and I wish to warn friend Green not to bring any of his colonies near the international boundary line unless he pays for three to nine miles of territory in Canada, and not then unless he pays Uncle Sam for the importation of the goods. We all feel we should like to do something; but the subject is so complicated, there are so many rights to consider, that in all probability until the millennial period it will not be solved.

There are, as has often been pointed out, many somewhat parallel cases. A man goes into a section of country. There is room for one store, and he buys, builds, and invests. Then another man comes in, and one must go to the wall. We have very clear proof of many such cases. The number of colonies a given territory can support is a much more uncertain question; and then, as before stated, in discussing this question we have heretofore either done it from a bee-keeper's standpoint, and his interests alone, ignoring the primary right of the agriculturists who own the source of the nectar, or we have stultified ourselves by denying in principle the value of bees in the fertilization of blossoms. It is useless to do either one or the other, even were we disposed to "blow hot and blow cold," for the facts and line of reasoning are only too patent to any one to attempt to show otherwise.

I might add, how unfair it would be to say so many colonies for each square mile. Some could support hundreds of colonies, others none at all. If the territory were valued,

who would be the government official or otherwise who would have the nerve to presume to know enough to do the job? If no one in the United States or Canada had the necessary quantity, what use for other countries to attempt it? If they did, a few years often change the agricultural conditions to such an extent that the value is changed. If the privilege is auctioned off, then the man with 100 colonies can put ten men with 75 colonies out of business. That will not do, surely. What, then, will do?

Brantford, Ont., Can.

[There is a great deal of truth in what our correspondent says on this point. However much we may desire it, it is a will-o'-the-wisp that we shall probably never attain.—ED.]

BEE-KEEPING AND HORTICULTURE.

Extracts from a Horticultural Meeting at Moberly, Mo., which go to Show that it does Not Pay to Spray the Blossoms.

BY J. W. ROUSE.

(*Pres. of the Missouri State Bee-keepers' Association.*)

We attended this meeting and made our address on the subject assigned us, "Bee-keeping in Relation to Horticulture." In our address we referred to the many tests made by many of the relation of bees to the successful growing of fruit, besides giving some experiences and observations of our own. Our main thought in attending this meeting was to speak on spraying during fruit-bloom. Before making our address we had the pleasure of listening to Mr. W. M. Scott, of the U. S. Department of Agriculture, who made an address on spraying fruit-trees. He made a very comprehensive talk, using a chart to explain his experience. We noticed that he advised to spray just before the blooming time, and then not until after the bloom had fallen. We felt sure he had a reason for not spraying when bloom was out, so we asked him why not spray then. He then knew nothing of us at all. While we thought we anticipated his reason, we must say we did not dream of such an answer as we got, which was, spraying when in bloom could be done fully as well and with all the same results either before or after the bloom had fallen; but to cap it off he stated that in many experiments made, to spray while in bloom often did great damage to the bloom itself, and in some cases destroyed the prospects for a crop of fruit entirely, the poison so damaging the fertilizing element in the bloom as to ruin it for fruit.

After him Mr. J. C. Evans, a life member of the society, and who has been its honored president for twenty years or more in its early history, and who is, so far as the writer knows, the largest fruit-grower in the world, stated he had tried spraying while in bloom thoroughly, and was fully satisfied it is an injury to do so at that time. There were many others who corroborated these state-

ments, giving their experiences, and all, so far as heard from, said that they were convinced it is better not to spray during fruit-bloom. We brought out some of this in our address, with many other things, and we were congratulated by many after the meeting was over, which showed us we had an interesting subject.

Mr. E. J. Baxter, of Nauvoo, Ill., made a little speech after we had got through, endorsing our address in full. Mr. Baxter has a large number of bees, and is considerably interested in the growing of fruit, he also being a life member of this society. Several others spoke and gave their endorsement of what we had to say. We feel as if this will do considerable good to the bee-keeping interests everywhere. Our subject appearing in the printed program with our address, we had several requests to send what we had to say for publication. We trust that no one will think us egotistical; but we have made this subject some study for quite a while, but are sure there are many others who could handle the subject much better than we if they would try; yet we feel that we had just the subject that was of interest, and it came in at just the right time. I would say to others, go and do likewise, thus not only helping yourself in bee-keeping but also, by thus doing, help others.

Mexico, Mo.

PAINTING HIVES.

How to Mix the Paint and Apply it so that it Will not Crack and Peel off; the Advantage of Three Colors.

BY W.M. LOSSING.

I see by GLEANINGS that there is quite a controversy in regard to painting hives different colors. I wish to add a little of my experience. I have adopted the red, white, and blue, since 1880, and am so well pleased with the result that I am painting all my new hives this spring the same colors. It avoids the bees making mistakes and going into the wrong hive. If you remove a white hive, many of the bees will pass the blue one on the one side and the red on the other, and go into a white hive. This shows conclusively that bees mark their location by color as well as by location. I admit that, where a few colonies are kept in one place, there is very little danger of the bees mixing; but where you have long rows of hives in sheds, as we have in Salt River Valley, the three colors will avoid a great deal of confusion and the lives of many bees and some young queens. It cost only a trifle more to use the three colors, and you are more than paid by the appearance, if not otherwise. My method of painting hives is as follows:

First have all hives perfectly dry and clean; prime with yellow ocher and raw linseed oil. Be sure to fill all nail-marks and cracks; let this priming dry, say, 3 or 4 weeks before

putting on second coat, which should be strictly pure white lead and raw linseed oil. Be sure to let this coat dry thoroughly, at least 15 or 20 days, when it will in good weather be ready for the third coat; add a little zinc to the lead and use boiled oil, rub out thin. The other two coats should be rubbed out thin also. If you follow the above your paint will not peel off in a short time, as lots of beehives now do. They will have a nice gloss, and be thoroughly cemented to the wood. You can add the coloring as desired.

Phoenix, Arizona, Feb. 27.

[We have a good deal of other proof of the same nature; and I am now beginning to feel that it would be good policy for queen-breeders, at least, to have their hives painted different colors, especially where many of them are located on a plot of ground without distinguishing bushes or trees.—EP.]

CAUCASIANS IN EUROPE.

A Translation from an Old Russian Bee-book.

BY E. L. PRATT.

The bees of the yellow Caucasian race (*Apis mellifera Caucasica aurea*) in their size are considerably smaller than the common blacks or northern bees, and they differ from the latter in their color. The first three rings from the breast are of a light golden color; and there is on the breast (thorax) between the wings a little half-ring of the same yellow color. The queens are yellow-banded, with little black marks on the end of their bodies. Some of the drones have yellow bands, and some of them are quite black.

The Caucasians are the most gentle bees among all known races. The gentle character of the Caucasians, and the ease with which one may work with them, gives the right to recommend them to the new student as well as the bee-keeper of experience. The industry and prolificness of Caucasians stand above the other European bee races. The yellow Caucasian bees can be kept with success in southern as well as in northern parts—where they stand well the long severe winters.

THE GRAY CAUCASIAN HONEY-BEE.

The gray Caucasian bees (*Apis mellifera Caucasica nigra argentea*) differ from the yellow ones in their dark coloring. They much resemble the common (blacks) or northern bees; also, like the yellow Caucasian bees, they differ from the northern bee in their smaller size, sharpness of the end of their abdomen, and the quantity of the breast hairs. The gray Caucasian bees, like the yellow ones above mentioned, are very gentle and industrious, and can well stand cold climates, but are not so much inclined to swarm.

Swarthmore, Pa.

UNWELCOME VISITORS.

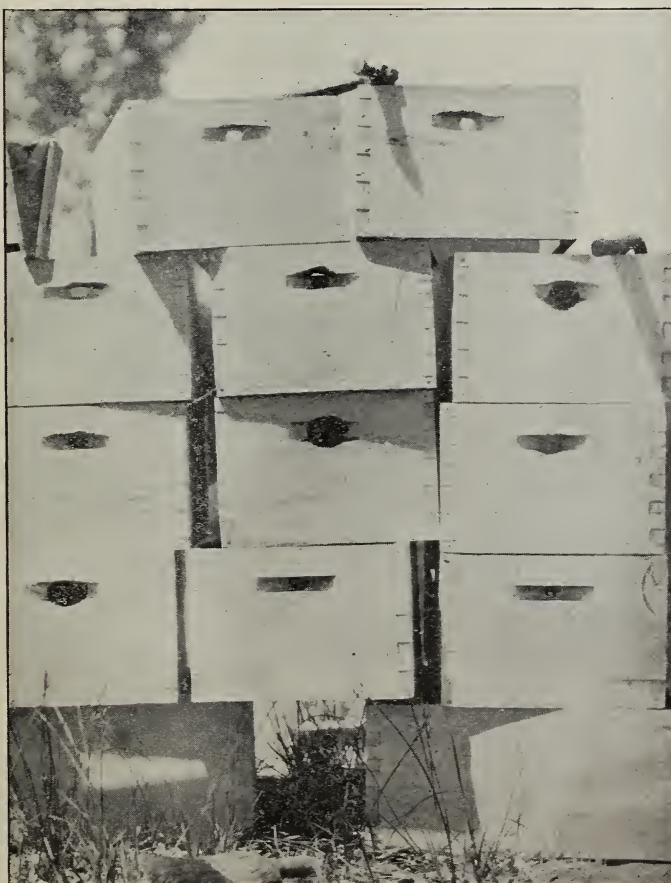
A New Bee Enemy.

BY SOJOURNER.

The great earthquake and fire, April 18, 1906, called the writer from his apiary in the Big Meadows to his home over the Sierras, in California. It was during this brief visit to his home (some ten days) that his apiary was taken possession of by the unwelcome visitors whose work is shown in the accompanying photograph. These visitors, two in number, first made an entrance to his cabin abode. They had no modern tools—a jimmy, a chisel, or a hammer, so they used nature's weapons and got there just the same. Instead of the door as a vulnerable point they worked their way in at three points, boring their way through inch boards. Having established a headquarters, and finding the cracker-box, they were ready for a stay. Next they visited the apiary, a few rods away, where, finding the supers to each hive just placed in position, and yet empty, they

proceeded to investigate, and went at it rather systematically, for nearly all of the upper stories were tapped. Those which contained pure Italians were actually entered, and the warmth from the swarm below was enjoyed for a season. When they knocked at the homes of the poor and much-despised black bee their sojourn was short, for the holes made there were only large enough for a bee to enter or come out. It was, perhaps, too warm inside, or they thought so, and departed for other residences to enter.

Upon our return we found some robbing going on, and at once found the cause; for these ugly holes were clouded with bees intent on offense and defense. It was a new trouble to the bee-man, and he was at first bothered to know who had bored these holes. When he entered his humble cabin, and found therein Mr. Robber, he first learned of this new bee enemy with which he must contend. Shotgun in hand he soon dispatched one of these mauraunders, when, lo and behold! it was a female. Soon her nest was found, and near it her companion in theft. It was a week or so before his scalp was taken. Then the trouble of reaching the nest in the body of a large solid tree was undertaken at a height of some twenty feet. Having disposed of nest and both owners, no trouble has been given the apiarist since. What the necessity was for so many places for homes or resting-places the apiarist can not comprehend, for there were in all about twenty holes made, large enough to admit their body, and some fifty smaller ones where, evidently, their attempts at entrance had been stopped by the guards. Perhaps they were intending to swarm later, and had sought homes for the increase. These visitors, perhaps a new bee enemy, being dead and buried, we can not get a photograph of them or we should be glad to do so, and thus put our fraternity on the guard, for there are others in the land; but so far they have not proved to be real bee or honey thieves; in fact, we do not see that a single bee or drop of honey is missing. Perhaps it was all through idle curiosity that this work was



HOLES MADE THROUGH THE WALLS OF A HIVE BY A BIRD.

done. Any way, it caused the apiarist some worry, much labor, and about 75 pieces of tin to undo the mischief done.

THE IMPROVED UNCAPPING-KNIVES.

Why They Should Be Made Narrower; Some Pertinent as well as Practical Suggestions.

BY C. W. DAYTON.

In respect to those long uncapping-knives described on page 937 I would say that they are going to fill a "long-felt want," at least in my case. Unless you make some two or three inches longer we shall have to get them made to order. Most of the knives in use are too thick and too wide. This makes them too heavy. If you notice grass-scythes you will notice some short heavy-bladed ones and others long, slim, and light. One kind is for dodging about among fruit-trees, berry-bushes, and fence-corners, while the other is for cutting a wide clean swath in the open field. A grain-cradle scythe is still heavier and wider because it carries the grain. This idea of a honey-knife carrying the cappings was gotten up before present capping-boxes were devised—when the cappings were to be bestowed in any convenient small dish that happened to be at hand. A good barber shaves with what is termed the "heel" of the razor. An uncapping-knife partakes of the manner of manipulation of both the razor and the scythe. The narrower the comb the better the long knife will work; or, to be more exact, the better the worker can work it. Some razors are wide of blade. It is for the same purpose—to "catch the cappings."

To gather cappings of honey on a knife takes strength, and also strength and time to get them off the knife. Even when the cappings slide across the blade and drop off it wastes strength, so it wants a knife with a narrow blade. The narrower and lighter the blade the less it gets in the way of the capping.

My extracting-combs are only $4\frac{1}{4}$ inches in depth, and still I want the long knife—not because a long knife is more necessary on wide combs than narrower, but because the narrower the combs are, the better the knife will work, or can be manipulated.

Now, we start with the heel of the knife to cutting the cappings at the lower edge of the comb as it is held upon end over the capping-box, holding the knife at an angle of 45 degrees, the point dipping downward. Bring it upward by a drawing, saw motion. The strength required in this comes mainly from the muscles of the arm, and is restful to the wrist. When the knife has progressed upward halfway of the comb, drop the heel downward and push the blade upward in the opposite 45-degrees angle until it reaches the upper edge of the comb.

Our present knives are two inches wide, but you can see that a blade $1\frac{1}{4}$ or $1\frac{1}{2}$ inches wide held on this 45-degrees angle presents

a wider surface than the two-inch blade held straight across.

There is another point here that should be understood. The comb should be held by the left hand, on end, resting on the frame of the capping-box. As the knife cuts and progresses, and varies its speed of movement, the comb is leaned to the right, and back again, and repeated, about as much in motion as the handles of a bicycle over a rough road. If this movement is well gauged, barely the edge of the capping will go down into the capping-box about as continuously and unbroken as a sod furrow leaves the mold-board of a plow. It needs this capping to adhere to the side of the knife, a small amount to hold the knife steady, and it also indicates how deep the edge of the knife is running; but there is no weight of capping to be supported by the wrist or thumb. When there begins to be some weight felt, lean the comb slightly to the right; then when the weight is nearly all off, lean the comb to the left. After uncapping a few tons by trying to adhere to these directions, one strangeness after another will disappear until it requires no thought whatever, and then the speed can be increased almost beyond belief. The thinner the blade the lighter, and the more delicate the touch, and, consequently, the thinner the cappings can be gauged, unless one chooses to uncap as thick as Mr. Townsend does, where it leaves the cells only $\frac{1}{2}$ inch deep. I leave the combs in the hives until they are entirely sealed over, but not until after the harvest is over and the honey is exceedingly thick and waxy; but then the heated knife works as well as ever. The heated knife necessitates rapid movements. But uncapping as thick as Mr. Townsend does would soon cool a knife. I see no use for two cutting edges, and would prefer the back edge to be like that of a putty-knife, for divesting the frames of brace and burr combs. The sharp edge of a knife often dips in and slivers the wood.

The shanks should go clear through the handle, and have a threaded nut on the end. In dry climates like the arid regions of the West the shanks soon become loose in the wood; a little honey gets in, and makes constant trouble.

I have used the light and heavy bladed knives side by side for years, and always preferred the lightest, or thinnest and narrowest. As for the two cutting edges, one always goes without grinding, because it is never used. But we keep a wide-edged putty-knife near with which to remove the burr-combs and wax from the frames. But it makes an extra movement to lay down one knife and pick up another. But suppose the other has been mislaid, then what? A waste of time enough to scrape two frames.

But the worst mistake is to get into the habit of snapping with the point of the knife. Start in with the heel and end with the heel. It is as good as if the knife were two inches longer, because it is doing work by a preliminary motion while the main cutting part of

the blade is held in reserve for future use, or we will use all the length of the knife's edge and still lack, and need to put in an extra point-cut or give a heavy square cut against the edge.

Chatsworth, Cal.

[If you will send a wooden model of your ideal knife we will have an illustration of it made to submit to our readers for discussion. In the mean time you have given us some good suggestions that bear all the earmarks of being fresh from the field. This is a good field for discussion, and we hope others of our practical men will be able to help us clear up this problem. Perhaps it would be well to have two or three styles of uncapping-knives, each knife adapted to the kind of frame used, as well as the individual notions of the users of the implement.—ED.]

A LONG UNCAPPING-KNIFE.

Uncapping-knives Cold vs. Hot: Two Tons of Honey Uncapped in One Day by One Person.

BY J. C. BALCH.

In GLEANINGS for July 15 I was impressed with E. D. Townsend's description, p. 936, of your longer honey-knife. While I have been partial to the Bingham honey-knife for a cold knife, I do not know whether it will be any better to have it longer or not; but where a person has from 100 to 500 colonies or upward, and a heavy honey-flow, as they had in California in 1897, the Bingham is not long enough nor heavy enough. I do not think there is any one man who could uncap two tons of all sealed honey in a day with a Bingham, either long or short, either as a cold or a hot knife; but I knew a lady in Ventura Co. (and you know her through Rambler), Mrs. W. T. Richardson, of Moore Park, who often uncapped two tons of honey in from eight to ten hours with a hot knife. It was made just like a bowie-knife—sharp on both edges, twelve or thirteen inch blade beveled on both sides, and very thick metal, to hold the heat. She used two knives. While she used one the other was in a boiler of hot water, directly in front of her. Just across was the uncapping-tank, which was 8 ft. long, 14 in. wide, and 3 ft. deep, with a 2×2 -inch cleat across the center of the uncapping-tank, with a spike driven through the center of the cleat from the bottom, so that it stood at least two inches above the cleat, and was sharp enough so that, when you set a frame of honey on the spike in the center of the end of the frame, the weight of the honey would hold it so it would not slip off; and with one downward stroke of the knife the cappings were all taken off smooth; then a simple turn of the wrist, another downward stroke of the knife, and it was set aside and another frame taken from easy reach on the left, and treated the same way. She uncapped deep, but not always clear down to the frame, but deep enough to re-

move all the cappings and unevenness of the comb. There were two helpers with her in the honey-house—one to handle the combs and one to turn a four-frame reversible Cowan extractor, and two in the apiary. The writer took all the honey from the hives, and the other wheeled it to the honey-house and returned with the empty combs.

Ferndale, Wash., July 25, 1906.

[I notice that you speak of Mrs. Richardson applying the stroke of the knife *downward* in uncapping. A majority of the producers of extracted honey work the knife upward.

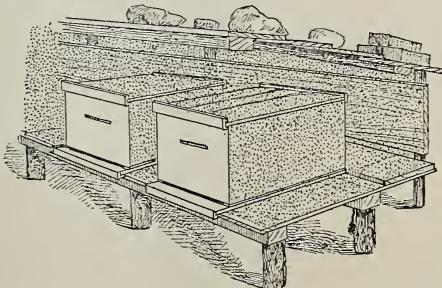
After visiting extracting-yards where the hot knife was used for uncapping and others where the cold knife was used, I have come to the conclusion that in a great majority of cases, at least, the application of heat is a great advantage; and I am not sure but it would pay well in every case. Especially is it an advantage where the honey is thick. The hot water washes the knife, and at the same time heats it enough so that it does not take nearly the muscular strength to force the keen edge through the cappings or comb.—ED.]

OUTDOOR WINTERING.

A Modification of the Plan Described in the Feb. 15th Issue.

BY W. T. DAVISON.

Last fall, when I began packing my bees for winter, I found that my shed was not long enough to pack them all in, so I began to plan some easy way to pack seven colonies that I had out in front of my shed. These hives are standing on what I call trestles, made by driving some large stakes in the ground and nailing some 2×6 pieces to each row of stakes running east and west, the hives facing the south, so I placed the hives just the right distance apart, then took some three-foot boards I had and laid a board



down between each hive flat on the trestles. The south ends of the boards are just even with the front ends of the hives, and the north end extends out one foot further north than the hives do. Then I drove some stakes in a row at the north end of these boards. These stakes can be six or eight feet apart. I nailed a broad plank to the south side of these stakes. The lower edge of this plank

was just one inch higher than the boards that I laid on the trestle. This plank serves for a back wall to hold the straw.

Now remember that there is about one foot of space between this plank and the back end of the hives, and that there is an open space between these boards just back of each hive, so to make a floor without any holes big enough to leak straw. I lay boards back of the hives across the ends of the boards that are laid between the hives; the rest of the work is done just like packing them in a shed (see GLEANINGS, page 212), except, of course, the roof. The straw is about one foot deep on top of the hives. Then I laid a large rail on top of the straw at the front end, and a small rail on the back part of the straw. I then covered it by laying long boards across the top of the straw so the water would run north; then I put heavy weights on the boards to hold them to their place. The roof must have plenty of slope. I notice quite a number of bee-keepers have their hives resting on trestles or scaffolds, and I must say that they are handy.

When working with your bees, instead of setting frames down on the ground one can set them on the trestle and lean them up against the hive; and when winter comes I can pack my bees in straw without moving them very much. This way of wintering is a cheap one, and it has proven to be safe. When spring comes you can take the boards and stack them up, carry the straw away, then your hives are out where you can get at them. My experience in wintering is, three winters without losing a colony.

Velpen, Ind.

[The plan you describe is all right; but some expense might be saved by using a top covering of straw, laying it in such a way as to shed water. Perhaps it would be well to remark that the artist did not get the 2x6 pieces shown correctly. As I understand it, they are nailed flat against the sides of the

stakes, with edge reaching up to the top of said stakes.—Ed.]

AN ENTHUSIASTIC YOUNG BEE-KEEPER.

Since my little son Henry attended the bee-keepers' convention at Jenkintown he has been an enthusiastic bee-man. He knows his bees, and they seem to know him; and as soon as he has saved enough money he is going to subscribe for GLEANINGS. In the mean time he is studying all the bee-books he can get hold of in the public libraries. I send you a picture of him which I took a few days ago. Henry gets our whole family interested in bees. H. C. SCHNEIDER,

German Lutheran Pastor.

Roxboro, Philadelphia, Pa., Sept. 24.

[GLEANINGS is always glad to encourage a young bee-keeper like the one here shown. We are, therefore, sending him GLEANINGS one year, as a present. We will do this by



HENRY SCHNEIDER, A YOUNG BEE ENTHUSIAST.

any boy of the same age who will make the same progress and send as good a picture of his actual bee-handling as the one here shown.—ED.]

EUROPEAN TRAVELS.

A Visit to an Apiary in Italy: the Berlepsch Hives Used by the Trappist Monks.

BY RALPH BENTON, B. S.

Assistant in Entomology, University of California.

[Perhaps we ought to explain that the writer, Mr. Ralph Benton, is a son of Frank Benton, and it would appear, accompanied his father on his recent trip through Europe, in quest of new races of bees. The junior Mr. B. has furnished us additional sketches which we hope to give later on. His style is natural and easy, and we believe our readers will enjoy reading them.—ED.]

Out along the highway from Rome, past the modern church of St. Paul without the Gates, half hid in a eucalyptus grove, is the old monastery of Tre Fontane. It was a hot day in July, near noon, when we reached the cool of the shade and drank from the spring by the driveway.

We sent in a card by the gardener whom we found on the grounds and strolled toward the chapel containing some old mosaics and housing the three fountains which give the name to the monastery. There is an old legend told that St. Paul struck the ground here and immediately the three fountains gushed forth, all of different temperatures; and in proof of this you may, with the aid of a long-handled dipper, drink from each of these successively and determine the relative temperatures if you like.

These Trappist monks are jovial fellows, and those we met were Germans. They were just at dinner, and so we busied ourselves by inspecting the old chapel and the ground about it. We had not long to wait before the gardener reappeared with Fra Giuseppe, clad in his rough wool robe and cowl of dark brown, and with belt of white cord and dangling tassels.

"Benton"—yes, he knew that name—he had read of "Frank Benton." "But the lady will have to remain outside," and he drew from beneath his robes the big clumsy key that unlocked the sacred cloisters, and we, taking leave of our fairer companion, squeezed through the half-open door which clashed noisily behind us and was carefully locked again by Fra Giuseppe. We passed through the still and silent whitewashed cloisters to another door, and found ourselves

in the inner court with its well-cultivated vineyard. Fra Giuseppe, having caught up his broad-brimmed straw hat which he now donned, led the way to the bee-house, where the hum of bees became distinctly audible. In proof of his previous statement of being familiar with the name Benton he now produced from a box a well-made Benton mailing-cage. In the absence of an awl the old monk had burned the ventilation holes in the grooves at the sides, thus insuring plenty of air, as the bees could not, through moisture, close the openings by swelling, as might have been the case had he been content to punch them. But we had our own cages with us, all provisioned, ready for the reception of the queens and their attendants, and Fra Giuseppe now busied himself about lighting his smoker.

The house was built in an L, with the entrances of the colonies opening on the partly enclosed portion. The hives used were of the Berlepsch style. These open at the rear, and take two, three, and even four sets of combs, one above the other. The frames are



A GLIMPSE INTO AN APIARY IN ITALY.

perhaps one-third to one-half the size of a Langstroth frame, and of about the same relative depth and length. They rest on rabbits, and are parallel to the entrance—being removed from the rear with the aid of a pair of pliers. These hives may have two or three advantages: The brood-chamber is at once easily inspected without having to lift off one or two heavy top stories; the honey stored in the rear of the brood-chamber can be removed; and the whole operation of opening a hive can be accomplished from within the house without coming in contact with the flight bees or the bees of other colonies. Manipulation is necessarily slow, and extracted honey is almost exclusively produced. It is extremely difficult to find a queen in a strong colony, because only one comb is accessible at a time, and with the re-

removal of each successive comb the queen has a chance, if at all disturbed, as is likely to be the case, to run forward, often necessitating the removal of fifteen or twenty of these combs in quest of her. It is fortunate that the Italian bees do not gather the propolis that hybrid or black bees do.

Fra Giuseppe had a number of nuclei, and seemed to know about the age and probable condition of all his queens. He showed us a complete home-made artificial queen-cell-dipping outfit, and the way he made his cells displayed a good practical knowledge of queen-rearing.

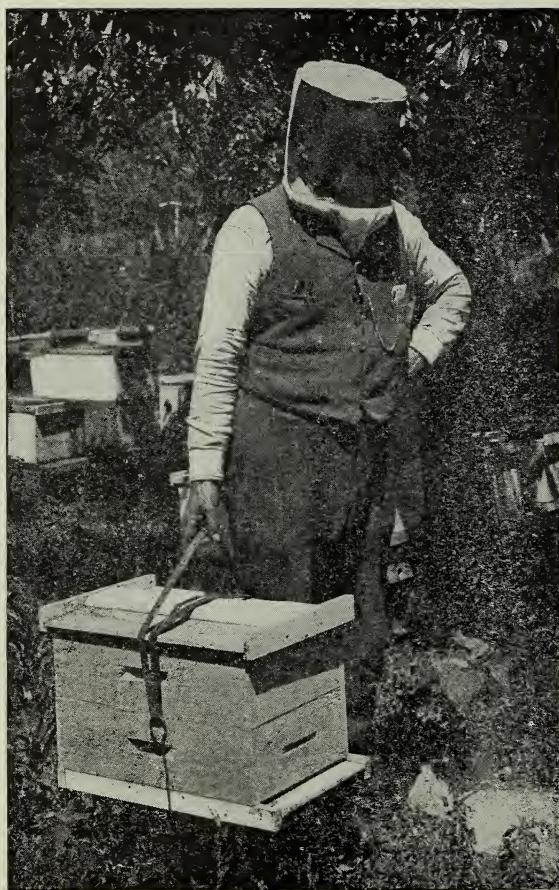


FIG. 1.—A SIMPLE AND QUICKLY ADJUSTED HIVE-CARRIER.

Having looked over the nuclei in the house, we now repaired to the end of the building where, ranged along beneath the peach-trees, were a number of colonies in Dadant hives, of the monks' own manufacture, as, indeed, all of his hives and appliances were. It was here that Fra Giuseppe consented to have himself snapped among his bees and carried away in the ever present American camera,

on condition that he should have a picture for himself.

The old monk spoke well of the Dadant hives; but, still true to the Fatherland, he clung to the old Berlepsch hives he had learned to use as a boy in Germany. The bees he kept were of a dark leathery color, the true type of the bees of Italy—quite gentle, and easy of manipulation. Having the number of queens we desired, we paid the monk and awaited our change. He turned the gold over in his hand and exclaimed, "Ah! but we are poor Trappist monks! we have not so much money!" But he disappeared along the cloister, and soon returned, bearing the right change in glittering gold; and, joining our companion without, we took our way down the dusty road to Porta San Paula and back to Rome.

THE MOUNTAIN MEADOW APIARY.

A Strap Hive-carrier; Reversible Closed-end Frames.

BY ANSON S. WHITE.

I am sending you some pictures of the Mountain Meadow apiary. Fig. 1 is my hive-carrier. It is composed of two hooks and a strap. The hooks have an eye in one end, and the strap is run through both eyes, and buckled. That makes the strap doubled. Now put a hook under each side of the bottom-board and lift on the strap. You will see that it will squeeze the whole thing tight together.

Fig. 2 is of myself in the apary.

No. 3 is my new frame, closed end and reversible, and end spaced top and bottom; no killing of bees, no deep rabbits in the hive. Please give this frame a little of your time, as I believe it is worthy of a trial, and also give me your opinion as to its worth. Why not hang section-holders with it in place of setting them on tin, so the finished ones can be easily taken out when finished, without trouble?

Cowiche, Wash.

[Your hive-carrier is a simple contrivance, and has the merit that it will grip the hive solidly, without letting it get loose. The arrangement as a whole is excellent—particularly so as it may be used on any hive with cleats or not. A mere shortening of the strap will permit its use on hives of different widths and depths. I believe the arrangement is good enough to illustrate in the A B C of Bee Culture.

Your reversing double bent wire was illus-

trated in these columns somewhere in the late 80's—about 1886 or 1887, I think. At that time it was shown in connection with loose unspaced frames. The objection to a wire bent in this shape is that the frames will not be all adjusted to an equal height—that is to say, the right angle at each end of the



FIG. 2.—ANSON S. WHITE IN HIS APIARY.

wire will sometimes be a little more and sometimes a little less than a right angle. Some wires will spring more than others. A tin strip nailed to the bottom inside edge, projecting inwardly, as ordinarily used, would be simpler, and a better arrangement, in my opinion, and at the same time cheaper.—ED.]

THE LONG-IDEA HIVE, AGAIN.

How to Prevent Swarming, and Secure the Largest Amount of White Comb Honey.

BY S. H. MITCHELL.

I here give a description of my hive, simply because in small hives it would be impossible to carry out my system of management. I have no hives or bee-supplies to sell, so I have no ax to grind. I am writing this for the sole benefit of my fellow bee-keepers. My hive is made as simple and as cheap as possible.

The dimensions of my hives are as follows: Length, 4 ft.; lumber, plump $\frac{1}{2}$ thick; width, 20 inches, outside measurement; depth, 10 inches; holds 30 L. frames. I rabbet out $\frac{1}{2}$ inch at each end to receive the supers. In the upper stories, or supers, the end pieces are 8 inches wide, 20 inches long, $\frac{1}{2}$ in. rabbed out on inside to fit on ends of hive; two side pieces, $\frac{1}{2}$ inch thick, 8 inches wide, 4 ft. long. This story will overlap the hive $\frac{1}{2}$ inch all around, and will give room to lift frames without removing it.

The front of the hive should have three

entrances, $3\frac{1}{2}$ inches long and $\frac{1}{2}$ inch deep, one in the center, the others 4 inches from the ends of the hive. The hive should have two division-boards to fit the inside.

In the spring of the year, about the time apple-trees are in bloom, I select a good strong colony of bees with young queen if possible; remove them from their stand and place the large hive in its place; then lift out all the combs and bees and put them in the center of the large hive in the same order that they were when in the small hive. Place a division-board on each side of them and cover up good and warm. As soon as there are bees enough to cover all the combs, move back one of the division-boards and slip the frames apart until you find the center of the brood-nest, and put in one frame of good worker comb and cover it up warm. In about a week (a little sooner or later according to the weather) open again,

apart the frames on both sides, but leave the frame you put in the last time and one each side of it; in their place put in an empty comb on each side of the three; put all together, and cover up well. A week later you can put in four or five empty combs, distributing them one in a place wherever the brood is thickest. A few days later fill in more combs until the hive is full. If combs are not available, fill with comb foundation; but the process will be much slower, and usually a day or two more time will be needed before spreading the brood.

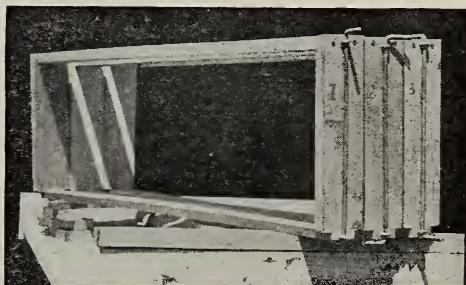


FIG. 3.—ANSON S. WHITE'S REVERSIBLE CLOSED-END FRAMES.

To the beginner I would say, "Do not be too fast. Use common sense and good judgment. If the weather is unfavorable, move slowly; if very good, move faster. The object is to keep them breeding so fast that they will be able to store little if any

honey. The effect on the bees is marvelous. They have to work, or starve their brood. It has the same effect that it has on a mother cat that has to hunt for half a dozen kittens. Strangers who visit my apiary in July call to me and say, "Mitchell, hurry up; every one of your big hives is swarming." I laugh, and say, "Those hives are swarming all the time." By the time white clover is well in bloom (about the last week in June with us) the thirty frames should be full of brood and have about two bushels of bees. The queen having worked so hard will, of necessity, lay but few eggs for three or four weeks, so that the energy of the bees is devoted mostly to honey-gathering during the cream of the harvest, and there will be no poor watery honey, either in the body of the hive or in the sections. Now cover all the surface at the top with sections, leaving $\frac{1}{2}$ space between the frames and the bottom of the sections. It will hold 100 or more. Never put on queen-excluders, as, under the conditions described, queens never go up among the sections, neither do the bees store pollen in them. The queen will now be resting to a great extent, and also will have plenty of room below.

Mark the place where the bees commence in the sections, then you will know just where to find finished sections, and can remove them and put empty ones on as often as necessary. By the above management I have secured, the past three seasons, an average of 125 pounds of pure white comb honey from each colony; and the thirty frames in the body of the hive will contain 120 to 150 lbs. more.

St. Mary's, Ont.

[The plan here described is simply the old "Long-idea" hive that was exploited something over thirty years ago. At that time great enthusiasm was evinced, but of late years it has been pretty generally abandoned, even by those who were once sponsors for it. Horizontal expansion, for several reasons, is not as satisfactory as the perpendicular. But the worst objection to a hive embodying the principle was its great size, its unwieldiness, and the weight of the supers. This was overcome in part by making the supers in pairs, placing the pairs side by side. But even this has its objections. Just as powerful colonies can be obtained by tiering one colony on top of another, thus enabling the owner of the bees to handle his hives in comparatively small units. There may, however, be some localities where the Long-idea principle may give better results than those now in vogue. Our correspondent may have the very best outfit for his locality.

The only bee-keeper I know of now, who uses the hive, is O. O. Poppleton, of Stuart, Florida, and he is a good bee-keeper—one of the best we have in the country. But his locality is different from most others. We should also recognize there are "many men of many minds," and if any bee-keeper thinks he would prefer to handle bees that way instead of lifting off top stories, let him try a hive or two "spaced out."—ED.]

THE TRADE IN BEES AND QUEENS.

Unprecedented Demand for Both; Making Increase by Feeding Sugar.

BY E. R. ROOT.

While there are plenty of queen-breeders in the country, men of known reputation for supplying first-class stock, there are comparatively few bee-keepers who make it a business to supply, in addition to queens, nuclei and full colonies. So great has been the call for the last two items that the publishers of this journal have located several apiaries in the East, besides one in the West and one in the extreme South. The one shown in the subjoined illustration, of the Root Co.'s Salem yard, is a fair example.

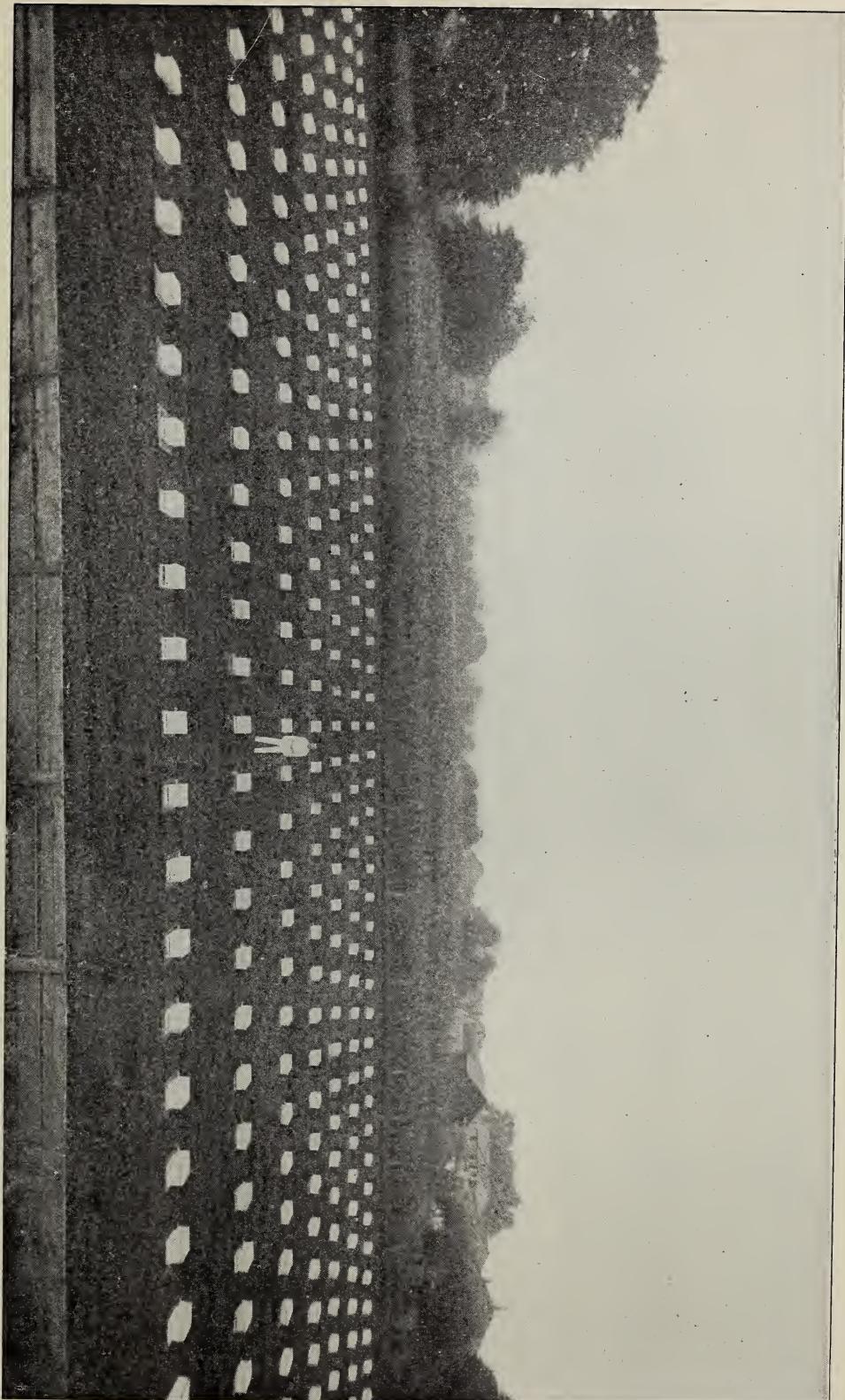
This apiary is located in Salem, N. J., on the east side, near the Delaware River, and along Salem Creek. The water tempers the west and north winds, so that early spring brood-rearing is favored. The soil is sandy, very dry, and the temperature of all this country is very mild. It is a great agricultural and fruit country, with a great abundance of clover and other honey-bearing flora.

This yard was made up by starting in July, dividing single colonies up into three and four frame nuclei, introducing an Italian queen to each, and feeding sugar syrup till each nucleus became a fair-sized colony at the time this picture was taken. The Alexander method and bottom-board feeder was adopted, giving most excellent results.

We find it is cheaper and certainly more satisfactory to make bees out of sugar syrup than to buy a mixed lot in all kinds of crooked combs in poor or odd-shaped hives of the so-called farmer bee-keeper. I speak of this in this connection because I do not believe it ordinarily pays one to invest four or five dollars apiece for ten or twenty colonies, in all kinds of hives and frames, because the same money invested in sugar, with the right kind of management, will insure a larger force of bees uniformly marked, of the desired strain, on combs built from foundation that will be as straight as a board, with the further advantage that every thing will be new, uniform, and first-class.

We have often wondered why there were not more who would be willing to furnish bees. A good many have tried it and given up in disgust. Why? When a customer sends off a distance for a colony of bees or a nucleus, he expects, first of all, well-marked bees, perfect combs, new frames, and a clean new modern hive or a nucleus-box. Too many who have essayed to go into this business have sent out colonies in the hives in which they were—frames old, combs imperfect, and bees poorly marked. The result is a confab between the purchaser and seller. The remedy is obvious.

But, more than all else, *it is very important* that any one who attempts to sell bees be familiar with bee-diseases—enough so, so that he can detect any infectious trouble at



THE A. I. ROOT CO.'S APIARY, LOCATED AT SALEM, N. J.

the start. It is also necessary for him to re-comb these bees about every two years, even though the old comb, three or four years old, be perfect in every way. Why important? To get rid of any possible germs of disease that may be lurking in the old combs.

There is sure to be a demand for bees in colony and nucleus form; and I think the time is fast coming when the government will be called on to inspect the bees, hives, and combs of every one in the country who sells bees. The same thing is required from those who furnish trees; and if we would keep down the spread of disease, the apiary or apiaries from which bees are sold should have a clean bill of health, tested by inspections made from time to time.

I also believe the government should require the recombining of the yards every so often. In our own practice the bees are re-combed automatically; for in the process of dividing, putting in frames of foundation, and feeding, in order to recoup the losses due to sales, the recombining process necessarily takes place.

POSITION OF THE HIVE-ENTRANCE.

Ventilation, and the Relation of Cluster to Entrance; Consequence of Shifting the Entrance from One Side of the Hive to the Other after the Cluster has Formed.

BY ALLEN LATHAM.

Some time last spring the editor suggested that I write an article this fall about the position of the hive-entrance, especially its relative position with that of the brood-nest center and the winter cluster. I was also asked to express my views on the effect of the position of the entrance upon successful wintering.

In undertaking a study of this sort one must go to the bees themselves and see what their wishes are. If they are indifferent to the position of the entrance, then we can be indifferent; but if they are particular, then it behoves us to be particular.

After a colony is well established in a hive it almost invariably draws its brood-nest toward the entrance, pushing the stores upward and back. Exceptions to this rule can almost always be accounted for by some peculiarity which the exception offers, in the way of hive-form, character of comb, or size of entrance. A large entrance with abundant air supply will tend to keep the brood-nest further back, while a small and insufficient entrance will cause the near approach of the brood-nest.

If I am right in my conclusions, this movement of the brood-nest comes about from the necessity of controlling the temperature of the air within the brood-nest itself. If the entrance is small, the bees are forced to cut down the distance to the entrance in order to regulate the condition of the air in the brood-nest. If entrance is large, there is ease of ventilation, but difficulty in protect-

ing the brood from the chill of a cold spell, hence the remoter position of the brood-nest.

Character of combs will have material effect upon the position of the brood-center. The brood-center is generally in or about a good straight worker comb, and is generally far removed from drone combs and crooked, irregular combs. Thus we see two controlling factors which govern the position of the brood-nest as respects the entrance; namely, ventilation and good comb.

The importance of this subject is as yet scarcely apparent; and lest the reader begin to wonder what I am aiming at I must hasten to speak of the mutual effect upon wintering which the brood-center and the entrance have. When a colony ceases its brood-rearing in the fall, it draws together about the comb from which its youngest bees are emerging, about those combs which, by means of their empty cells, offer the possibility for the most compact clustering. There, surrounded on most sides with honey, the cluster of bees will stay, to survive the winter or to perish. Move slightly for food it must, but no distant move will be made unless a forced one.

If the apiarist practices contracting the entrance in late summer, then the cluster will be found centered opposite that contracted entrance. If the entrance be in the middle, then the central combs will be occupied; if the entrance be to the right, then will the cluster be at the right; if the entrance at the left, then the bees are at the left. Not only this, but the bees will have stored their winter stores within easy range of this center, having filled in the adjacent cells as the bees emerged from the lessening brood-nest.

Suppose the apiarist does not contract the entrance till late fall, after the bees have ceased to breed. Then the brood-nest will be well back, and chance alone will determine whether it will be at the right, in the middle, or at the left. If the contracted entrance be in the middle, no harm may follow; but if the entrance be at the left while the cluster happens to be at the right, or *vice versa*, then disaster is almost sure to follow.

Another factor enters into the determination of the position of the brood-nest center. If the hive faces east, then the cluster will be on the right; if to the west, then the cluster will be on the left; that is, the cluster will be on the sunny side of the hive if combs and entrance make that possible.

As winter comes on, the clustered bees next to the warm side of the hive, with the hive-entrance just handily opposite, are in the best possible position to winter. They are in that part of the hive which keeps dry and well aired. Such is usually the case when bees are left to themselves. But it so happens that few colonies are left to themselves. Suppose the indifferent apiarist blocks up the right of the entrance while the winter-cluster has been established at the right. This act of the apiarist shuts the bees off from fresh air by several sheets of comb, and, more than that, greatly lengthens their path to a safe

winter flight. The bees, since the air is sluggish, suffer soon from moisture, and require frequent flights to keep in health. Seeking flight when the conditions for flight are bad, and along a cold path between the cluster and the entrance, causes the death of not a few bees. Unrest prevails, and conditions get worse and worse. A severe winter kills a colony thus situated; a mild winter leaves it in a condition difficult to build up to satisfactory strength in time for the harvest.

Thus we see the need of using great care in contracting the hive-entrance for winter to see that the entrance is left *opposite* the cluster. Some apiarists avoid the difficulty by using full-width entrances of less depth. Theoretically, surely, a wide shallow entrance is far safer than a narrow deep one. In my own apiary I have found success in a wide and also deep entrance. Whatever the entrance, it must be in part or wholly opposite the clustering bees, if one desires the best results.

warm and dry. Parts far removed from the entrance are damp, and, if unwarmed by the sun, coated with frost.

This is how it comes about: The air in the hive is constantly circulating, though it may be only slowly. The air next to the sunny side warms and takes up moisture; and, reaching the colder portions, is chilled and gives up its moisture. This moisture is deposited as dew or frost. This process goes on every day, converting the south side of the hive into a place of a pleasantly dry and mild climate; but the remote, shaded wall of the hive acquires a frigid and alpine climate. If in any way the apiarist forces the bees to try existence in this alpine climate he is dooming them to almost certain destruction should the winter prove at all severe. If, on the other hand, the cluster be so fortunate as to be situated in the mild climate of the hive, and has easy access to outdoors, then the winter must be severe indeed to bring about its destruction. If the kind apiarist also sees



EXHIBIT MADE BY M. H. HUNT & SON AT THE DETROIT STATE FAIR. SEE EDITORIAL.

Some apiarists practice shifting the hives as winter draws near, so that all face south, having in summer faced in various directions. There is danger here; for in this shift the natural instinct of the bee will in many cases be set at naught, thus putting the bees at a great disadvantage for coping with the long cold spells of winter.

It may not be clear to all my readers why one part of the hive can be any better than another part for the bees to be quartered in, and a few explanatory words right here may help.

The inside of a bee-hive in winter has a range of climate equal to that offered by many degrees of latitude or many feet of altitude. Some parts are dry, while others are reeking with moisture. Some are of mild average temperature, while others are frigid. That side upon which the sun shines and that part of it adjoining the entrance is

that the front of the hive be of a color and character to absorb a large percentage of the heat of the sunshine which strikes it, so that the moderating of the climate within is accentuated, then will the bees have a winter paradise.

Norwich, Conn.

[Our correspondent has doubtless stated the correct philosophy of ventilation and its relation to the cluster and entrance. The conditions he points out, however, may and probably do vary in different localities.

In our locality the winter cluster will be found well forward at the beginning of the season. This may be due to the entrance ($\frac{3}{8}$ inch by 8 inches) being too small; but if larger we have had bad winter losses. As the stores are consumed in front of the hive, with this contracted entrance the cluster gradually works its way backward, following

the stores until it reaches the back end. While I state this as a general condition, there are exceptions. Sometimes the cluster with the same-sized entrance will be at the back of the hive in the beginning of winter, and move forward; but of hundreds of colonies that I have looked over in our own apiaries I find the cluster almost invariably clear up against the front of the hive, and directly over the entrance. As we make it a rule to make an entrance $\frac{3}{8} \times 8$ inches wide in the case of an average colony, the cluster as a rule is on the center set of frames.

ADULTERATIONS IN WAX.

A Curious Adulterant.

BY E. R. ROOT.

As I have before explained in these columns, our foundation department has to be constantly on the alert to detect adulterations in wax, especially a promiscuous lot gathered from many different sources, and sold by one party. Some little time ago I showed how a stone had been neatly imbedded in a cake of wax.



A CAKE OF "ADULTERATED" WAX SENT TO MEDINA.

These facts, together with those related by Mr. Latham, go to show that a cluster of bees seeks the point of greatest ventilation. Temperature does not seem to play as important a part as fresh air in this matter of selection.

We lost only a few colonies, comparatively, last winter, and nearly all of those had an entrance clear over to one side. The trouble was we shifted the entrance to one side after the cluster had formed for the winter nap, with the result as stated. Mr. Latham's point, ot to shift the entrance away from the cluster after it has once formed, is well taken.

In the first paragraph I stated that the bees, in locating their cluster, seemed to seek ventilation. Perhaps some will raise the question, "Why would it not be a good practice to enlarge the entrance an inch or an inch and a half by the full width of the hive?" We have tried it several winters, and always to our sorrow, and find that most colonies will die before the coming of spring. Even a small entrance placed in such a position that the piercing winds of winter will enter it is quite liable to result in the loss of the bees. Outdoor-wintered hives should have the entrances protected by a barn or other out-building, fences, thick shrubbery, any thing and every thing that will break the force of the piercing blasts of air from any direction.—ED.]

This time I present a very curious form of adulteration, the adulterant being five wire nails driven down into the center of the cake. The cake weighed only one pound. Apparently the person who prepared it scooped out from the center of the cake a depression. Into this he drove five nails, then covered it with a nice soft ball of wax which he molded to fit the cavity. But the "filler" was of different color, and naturally attracted the attention of our men when it came up for inspection. A knife was inserted under what seemed to be a scab, with the result that the nails showed beneath.

This illustrates the old truth that some people actually work harder to practice deception and methods of dishonesty, and get less for it, than they would if they attempted to deal on the square. This person must have spent a good deal more time in fixing up this small cake of wax in order to make it weigh heavier in the extra weight secured, than the wax was worth, five times over. Actual computation shows he gained $1\frac{1}{2}$ cents in added weight to the cake of wax, but probably wasted ten cents' worth of time in making a bungling deception. The man who would sell himself so cheaply as this must be a very poor specimen of manhood, to say the least. It is just such fellows as this who would sell their vote for a drink of beer.

THE ALEXANDER METHOD OF BUILDING UP WEAK COLONIES IN THE SPRING ENDORSED.

Wintering Without Bottom-boards in a Dry Cellar.

BY CHAS. G. MACKLIN.

Early in March I took my bees out of winter quarters and found a good many very light in stores; in fact, all but about six were too light to last until fruit-bloom. They had been out of the cellar only a few days when the weather turned very cold, and I had to hustle them back; but before I did so I gave each colony ten pounds of partly capped sections. They remained in the cellar until settled weather came in April; but the moving was a detriment to them, and I lost half as many during the five weeks they were in the cellar the second time as I did all winter. I gave them a careful examination when set out the second time, and found quite a large percentage with only a handful of bees, and with some brood and nice-looking queens. These were placed over my strongest colonies, with a queen-excluding board between, and left in this condition possibly four weeks. The treated colony was then left on the stand of the strong colony while the latter was moved to a new location. In every instance

I met with success, barring one exception, and that was where the colony had contracted the swarming fever. This colony swarmed out a few days after being treated, and the queen in the upper colony was killed, no doubt by the rush of bees past her in making their exit. Several colonies were queenless, the reason for which I will explain further on, and these were treated by the method recommended by Mr. Alexander. In each case I built them up into strong colonies before June 15. Several parties have reported that the Alexander plan did not prove a success with them; but at the present writing I do not know of a better plan to use, nor one with which I have been more successful.

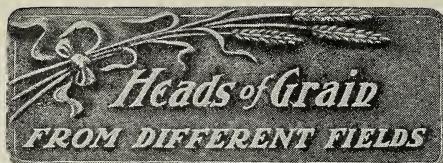
When my bees were placed in the cellar last winter I decided to try both plans advocated as to bottom-boards. Half of them were left with an inch space below, and the other half were piled up without any bottom-board. I found no queenless colonies in the spring among those left with a bottom-board, while those from which the boards were taken away had two queenless colonies. It is possible that the queen fell down upon the cellar bottom during the winter, and was lost; while if there had been a bottom-board on she could have crawled up among her flock again.

Morrison, Ill.



UNCLE SAM: "GET OUT O' THERE, Y' FOOL!"

[The cartoon above appeared in the *Plain Dealer*, of Cleveland, illustrative of an international complication that arose. The Japanese as a race are not unlike a colony of bees, which, when their rights, fancied or real, are molested, are quite quick to resent it. The cartoon, at the time of its appearance, therefore, was not inappropriate as illustrative of the condition as it then existed. Uncle Sam's expression of disapproval of the boy's expected fun is very apparent. The rest of the story is easily imagined.—ED.]



HIVES SHALLOWER THAN THE DANZENBAKER.

I have been using the Danzenbaker hive for about seven seasons, and like it all right except that it takes too much work to keep it clear of pollen in this part of beedom. I do not use excluders on it. But for perfected products, such as I get in the 4×5 sections, it is equal to any hive I have ever used. I have never tried a hive any shallower than the Danzenbaker; but could I dispose of my Langstroth size I would embark in a new venture. I think the shallow hive you have cataloged would be my next choice. I think the shallow hive embodies new and heretofore untried principles here in the South.

I believe that, with the shallow hives with an excluder, we shall lessen the amount of pollen in the sections and minimize propolis also, if we keep the hives well protected from the rays of the sun, and warm in the fall of the year.

Our opportunities are great for forcing the bees to go above; and by the use of the excluder we can keep the queen below. We

can fill the lower story full of brood, and add another made up from other hives that we do not expect to get any surplus from. When this added super of brood has hatched, the combs may be set on the hive that we originally took them from, to be filled for extracting. Now our hive is full of bees, and they will chuck the honey in the sections—all of it, too, because there is no place below for it. If the season shows to be one of longer duration it would be a good idea to give the queen another super full of brood—perhaps better set under the excluder this time. I believe that superfluous swarming could be reduced to a minimum, even if comb honey in sections were the main crop sought for.

If the size of the improved extractor could be reduced so as to cost less, but take from four to eight of these shallow frames (we have a plenty of extracting-frames already of the shallow makes to demand an extractor or to take them) it would be a greater inducement to sell off the old-style deep frames and get down to things more modern.

Levita, Texas. J. W. GUYTON.

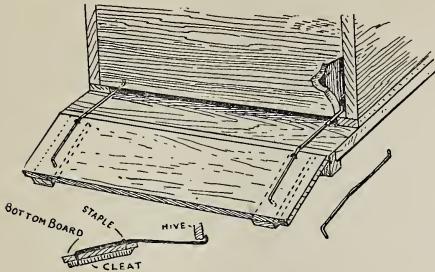
[You will see elsewhere in this issue that we propose to have a series of articles on the subject of divisible-brood-chamber hives, their uses and abuses, by one who has made a success of them. This writer will tell how, by their use, to produce the finest of comb honey, and at the same time control swarming. This series of articles will begin somewhere about the first of the year.—ED.]



A FEW CONSUMERS OF EXTRACTED HONEY; THEY TESTIFY TO THE VALUE OF HONEY AS A PREVENTIVE OF COLDS.—SEE NEXT PAGE.

AN EFFECTIVE WAY FOR ATTACHING ALIGHTING-BOARDS TO HIVE-ENTRANCES.

In order to attach alighting-boards to the entrances, take a stiff wire, about No. 9 or 10 size, and cut two pieces about 8 inches in length; bend them as shown, thus:



Take any kind of board as wide as you wish your alighting-board. Put two little cleats on the under side, with nails; then drive the $\frac{1}{4}$ end of wire through the board and cleat, leaving out the stout end hook; hook the stout end into the entrance so as to catch inside of the hive. Your alighting-board is as wide as you want it, and will not get out of place either on a hive on the ground or on one on a high bench.

Bend the wire at such a length as to leave no space for bees to jump over from board to hive. I have to use it on the old-style Danz. board. An old barrel will furnish stuff to make them, some staves being plenty wide on a biscuit or cracker box, when one has no lumber to cut up. Wires should be near the end to be out of the way.

Lindsay, Va.

D. L. MORRIS.

[The doorstep here shown is certainly very excellent, simple, and effective. Such doorsteps will easily pay for themselves in the early fall or spring of the year. Many bees will be lost in coming out on the first bright day, and, being chilled, on returning they will be unable to get into their hive unless an easy runway is provided.—ED.]

EXTRA-FANCY COMB HONEY WITHOUT SEPARATORS.

I use the 4×5 beeway sections, and always have to pay extra for them, but they are the best, in my estimation. You state in GLEANINGS that there is no first-class honey produced without separators. Now, I can send you some of the very finest of section honey that was produced without either fence or separators. My crop for this year, 1906, is 1000 lbs. of section and 545 of extracted, taken from 24 hives of weak colonies, spring count. Now my sections will grade extra fancy, all but 100 lbs. produced in sections of last year, which is a little darker in capping, but it is all straight, and would crate either side to—in fact, I produce it so nice that I exhibited 400 lbs. at the county fair three years ago, and so perfect was it that they nearly all called it manufactured—said it was impossible

to get bees to do such straight nice work. I always find a ready sale at 18 cts. for 10 lbs. or more, and 20 cts. for any thing less. Other bee-men using separators get 14 to 16 for their best.

A. KOONTZ.

[We have no doubt that *you* can produce beautiful comb honey of the finest kind without separators; but the average bee-keeper, judging from samples of honey that have been sent here, not separated, makes a bungling mess of it. I have some on my desk now which, if it had been separated, would bring a good price. As it is, the honey will have to be cut out of the sections and sold on wooden butter-dishes. But say, friend Koonz, you must have some scheme or plan by which you can produce such fine honey without separators. Granting that there is something in the man and management, there must be something in the device itself. If you have no objections we should be glad to illustrate it in these columns. We will pay all expense of photos or drawings; or send your section-super here and we will prepare an illustration of it.—ED.]

HONEY AS A PREVENTIVE OF COLDS; A FAMILY THAT KEEPS WELL BY EATING HONEY.

I am sending you a photo of our family—myself, wife, and eight children. We do not eat much comb honey, but large quantities of extracted. In years of scarcity of honey we would get out before the winter was over, and I always noticed that almost all of the family would have bad colds. Honey, I think, is a great preventive of colds. We live in a beautiful valley, four miles from the village of Greene, N. Y., on the Chenango River. Here basswood is abundant all along the river-banks and on the hills. As much as 120 lbs. of comb honey has been gathered by a single colony here. We noticed your offer in your issue for June 1, so we send a family photo, hoping it will be acceptable.

B. H. BRADLEY.

Greene, N. Y., Aug. 17.

WHAT IS A PURE ITALIAN QUEEN?

Will you kindly give me an exact definition of a pure Italian queen? I have expected them to produce bees, *every one* of which would show three bands, but have been disappointed every time. I have procured new queens. In every case I have found some bees that did not show a single band. In some of the instances the dark bees *may* have come from other colonies; but in the present case (a \$5.00 queen from a reliable breeder) the hive is situated over 30 yards from any other colony, in a window; so where have the black bees come from? The majority of the bees are plainly marked (the young bees quite handsome), but quite a number of bees can be picked out showing no yellow markings. How can I distinguish between a pure Italian and a hybrid? I have read up the subject in the A B C. Can you shed any further light on this case? I feel sure that I

have had mated queens as pure, many times, but could not prove it; yet in this case I am disposed to believe the queen-breeder honest. This queen, I might add, has a clipped wing.

L. W. DARBY.

Hahndorf, Australia, June 1.

[A pure Italian queen may vary all the way from a solid yellow to a solid black. Her purity must depend on the markings of her bees.

Our A B C of Bee Culture goes into this question of the markings of three-banded Italians more fully than we can possibly do it here. As you have read this it will not be necessary to go over it again. Your confusion arises from the fact that a few bees will scatter from one colony to another a great deal more than you suppose. If you had one or two good colonies of Italians, and ten to twenty of hybrids and blacks within a hundred feet, you would probably find among those Italians quite a sprinkling of blacks as well as one or two banded ones. These would be simply interlopers from other hives.

Some of our readers have doubtless noticed, when they have purchased a Caucasian queen, and placed her in a colony of Italians, in an exclusively Italian apiary, that even after months had elapsed, there would continue to be a sprinkling of yellow bees in her hive that ought to have only black ones. This would not prove that the Caucasian was not pure, but, rather, that a few yellow bees had probably made a mistake in their home.

The question might arise in this connection, "How can one know whether he has a pure Caucasian queen where there is a great preponderance of Italians in the yard?" By simply noting the markings of the very young bees as they emerge from the cells. If one is seen to crawl out of its baby quarters with one or two yellow bands, the presumption will be that the Caucasian was not quite pure.

—ED.]

RAISING CHICKENS ON AN ISLAND; A SUGGESTION.

Mr. A. I. Root:—I have noted with interest your experience with chickens on the Florida island, and believe that it will probably cause some young men to try the scheme. Now, I am a chicken-man, and, with others, know that most of the trouble with chickens is mites, lice, and contagious diseases. Now, why not note the idea in GLEANINGS, that, if there were no chickens taken on to such an island, only eggs and an incubator, getting only eggs to hatch for change of cockerels, there would be no lice, mites, or diseases on the island, and the greatest trouble with chicken-raising would be done away with?

J. R. MOONEY.

Butler, Mo., May 20.

[Friend M., your suggestion is certainly a good one. Prevention is better than cure—in this case at all events. I think, however, starting with fowls that are entirely free from the pests you mention amounts to the same thing—that is, if you can find such fowls; and Mr. Shumard's seemed to be remarkably

free from every thing of the kind. I feel so sure that there is a wonderful opportunity along this line I am just now planning some experiments of my own for the coming winter—I mean experiments in a locality where there is no need of any coops or buildings whatever for the protection of either the little chicks or grown-up fowls.

Now, here is another important point for our friends in Florida, or anybody else who contemplates going there or anywhere else where there is no freezing. If you have no buildings or coops to make, your capital may be all invested in stock—something that has a marketable value; and when for any reason you want to quit and go home you can turn your whole stock of fowls into cash any day in the year. Last winter friend Shumard thought he had more than he wanted to look after, so he packed up something like a hundred fowls, young and old, pullets and roosters, and sent them by boat to Sarasota, and I think he got 50 cents a bird for the lot right through; and those chickens were never inside a building of any kind, size, or shape in their lives. They had not even a place of shelter to go under when it rained; and they were the healthiest and liveliest lot of chickens, and the *handsomest*, too, I ever saw in my life.—A. I. R.]

SOME IMPROVEMENTS ON THE HIVE-CARRYING RACK.

May I suggest two or three alterations in the hand-barrow or rack used for carrying bees in and out of the cellar? I have one that has been used 16 years, and is in good order yet.

First, I put the legs about three inches further apart at the bottom than at the top. It makes it more secure while loading.

Second, in shaping the end of the handles I have it a little wider at the end. One can get a firmer grip, especially if he has to go up hill.

Third, in carrying a heavy load (we have put seven hives on) we use a rope tied to the handles, passed over the shoulders. It relieves the strain on the arms. These are little things, but they help a good deal.

State Mills, Wis.

GUSTAVE GROSS.

[These suggestions all seem to be good. The device was illustrated on page 440 of GLEANINGS for April 1st. With this before the reader he can incorporate the changes suggested.—ED.]

UNCAPPING-KNIVES WITH SCALLOPED EDGES.

I would suggest making those uncapping-knives, page 937, with scalloped edges, like those scalloped bread-knives. I have been using one of the latter for several years, and think they work well, using the same with either a drawing or sawing motion.

HERMAN BETKE.

St. Louis, Mo., July 30, 1906.

[I should like to hear from some of our extensive extracted-honey producers on this point;—ED.]

A THOUSAND ACRES OF CLOVER AND NO HONEY CROP; BEES UNABLE TO REACH THE NECTAR IN THE BLOSSOMS; THE ONION-THRIP.

In this valley there are about 500 colonies of bees, some 2000 or 3000 acres of alfalfa and white clover. Beginning on the first of July with alfalfa, and ending about the first of September, there is a continual honey-flow. Up to this date there is no honey, and I am compelled to feed my bees. There is easily a thousand acres of clover in full bloom within five miles of my apiary (some 290 colonies), and not a pound of surplus honey. Upon examining the bulbs of some of the flowers I find a small winged insect about $\frac{1}{6}$ inch in length, with a body about as large around as a small needle. I counted 474 on one stalk of clover. What I want to know is, can it be that these are taking the honey?

RALPH I. HALE.

La Plata, N. Mex.

[The above letter was sent to Prof. C. P. Gillette, of the State Agricultural College, Fort Collins, Colorado, who replies as follows:]

I have been waiting, thinking that I might receive samples of the insect that Mr. Hale obtained from heads of clover near his home. It would be impossible for me to state with certainty what the insect is; but there is almost no doubt that the clover-heads were loaded with what is commonly called, in this section, the onion-thrip. This is a very minute insect which can be shaken into the hand from the heads of clover, alfalfa, and other plants. This insect is frequently numerous enough in portions of Colorado to prevent almost completely the seeding of the alfalfa, and I presume it is this insect that was present in the clover-heads.

I can hardly think it possible that these thrips could be numerous enough to prevent the secretion of nectar, but I am inclined to think honey-bees are unable to reach the nectar in the blossoms.

C. P. GILLETTE.

Fort Collins, Colorado.

WATER STORED IN COMBS; THE LESSER WAX-MOTH.

I just went through my colonies, and found some badly infested with the lesser wax-moth, a thing not known here before at this time of year. This is the height of swarming here. Most hives seem to be building up nicely now, and storing some honey in the strong colonies. I can't get any drones in my Italians. Can I get them by placing drawn drone comb in the brood-nest? Italians are doing the worst of any—moths worse in them. The Carniolans are the most prosperous, and gentlest of any.

I wish to give some facts on the question of whether bees store water. I kept thinking I would make a reply to the statement in GLEANINGS last year, by Prof. Cook, p. 229. Dr. Phil. Max Boelte makes it pretty plain, page 589 of the present volume.

In April, 1905, I bought four colonies of black bees in box hives, and after bringing

them home I waited a few days before transferring them. One colony was weak, but went to raising brood in a hurry, considering their strength. When I went to transfer them, in taking out the comb, right in the brood-nest was a spot the size of my hand that was filled with the clearest honey, I thought, but not sealed. Now, in laying the combs in a large pan it ran out on my hand, and I put it to my mouth; but it had no honey taste. Then I examined it when fixing combs in frames, and found it to be pure water, the combs filled on both sides on a place about the size of my hand. How they kept it there I can not tell, but it was there all the same.

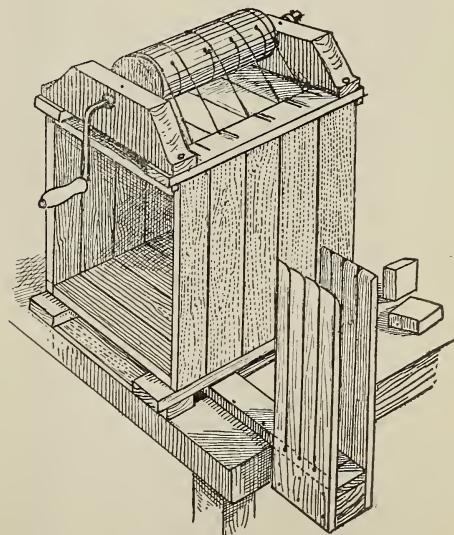
J. L. BARKLEY.

Bargain, Miss., May 7.

[There has never been any question that bees *gather* water; but that they *store* it in combs has been somewhat of a question. The reports already in give us proof, I think, that they do under certain conditions put it in the cells.—ED.]

CANDIED HONEY IN NEW ZEALAND; A NEW MACHINE FOR CUTTING THE CAKES INTO SMALL BRICKS.

This illustration shows a honey-cutter that does its work well. The box of the cutter is made of wood, and large enough to hold a block of honey that has candied in a 60-lb. can. The tin has first to be cut off (we in-



tend to experiment with wooden boxes that will take to pieces by unscrewing; but at present, as we lose the can when we sell it, we look upon it as no loss when we cut the can); then strong piano wires are led round the block 3 inches apart, through slits left in the inside box. These are fastened to the drum of the windlass on top, and, after a few turns of the crank, the wires have done their work straight and neat. These large blocks

are then put in the little wooden apparatus to the right, and cut into slices 1.8 inches square. This gives you a block of honey $3 \times 1.8 \times 1.8$, exactly $\frac{1}{2}$ lb. The blocks are then covered with two papers, the outside one printed with the name and address of the producer. These small honey blocks have taken immensely here, the grocers preferring to sell it all ready in paper, and the housewife also preferring it in paper to digging it out of a bottle.

One great feature of honey cut into blocks is that it looks clean and attractive, and the wrapper costs next to nothing—hence a greater demand for honey. The inventor of the honey-cutter is Mr. James Allan, of Wyndham, Otago, New Zealand, president of the most southern bee-keepers' association in the world.

ROBERT GIBB,

Sec. Southland Bee-keepers' Ass'n.
Tuturana, New Zealand.

[I do not know of any reason why this machine would not work as stated by our correspondent. We should be glad to have some of our readers try it and report.—ED.]

THE SIDE ENTRANCE; ITS EFFECT ON OUT-DOOR-WINTERED COLONIES.

I noticed in May 1st issue of GLEANINGS that you had some trouble with some of your bees that you wintered outdoors. You seem to think the trouble was due to having the entrance opening at one side. That might be so at Medina, but here in Bairdstown and Bloomdale the side entrance has no bad effect, as I always use one piece for closing the entrance, leaving the opening at one side; but I also reduce the entrance to $\frac{1}{2}$ inch depth. I note you had yours $\frac{1}{2}$ inch deep. Another thing I do is, I always have the front of my hives face the east, and leave the opening on the south side, which is 2 inches wide; and, by the way, there is another thing I have noticed in the way I have the entrance closed; and that is, the bees nearly always start brood-rearing in the north side of the hive.

A. J. OBERLITNER.

Bairdstown, Ohio, May 17.

A DRONE-LAYING QUEEN; CAN SUCH A QUEEN, BY FEEDING EXTRACTED HONEY, BE MADE OVER INTO A GOOD QUEEN?

I have just noticed, on p. 1129, the criticism by Dr. Brunnich, of Zurich, Switzerland, of a statement made by me on page 1239 of the year 1905, in regard to the queen purchased from The A. I. Root Co. in 1903. For the benefit of the doctor—or any one else who may be interested—I wish to say that that statement was *literally true in every particular*. If I had not known it to be true I might have *guessed* at it, and asked for information; but I didn't. Soon after she was introduced and had commenced laying one wing was clipped, and I was so greatly interested in her and the results that she was watched during her whole life. The

hive was filled with frames of worker comb built on full sheets of foundation. The center of the inside frames was occupied with hatching brood, more than two-thirds of which were drones. These frames were shown to a couple of my lady-friend bee-keepers, and their expression was, "Isn't that too bad?" She looked thin—in fact, "spring poor," and of a rusty color; but after carefully feeding the bees with good honey for a few days she commenced to fatten, look plump, and assume her rich golden color again; the drone eggs disappeared, and in midsummer I made four nuclei from her colony. Late in the season she commenced laying drone eggs again in worker-cells, and I reluctantly superseded her. This singular instance tends to explain to me a principle in parthenogenesis which has puzzled even scientific investigators, and, if I'm not mistaken, is not yet fully settled; namely, the cause or manner of fecundation of the egg as it passes along the oviduct. This is a very interesting subject to me, and it would give me great pleasure to read the opinions of close observers on the subject. If the matter is under the control of the queen, why drone eggs in worker-cell and afterward to worker eggs only?

THE VALUE OF THE PROTECTING CASE FOR SECTIONS.

I note with interest what Mr. C. D. Farrer has to say on page 1118, and your comments thereon regarding the necessity of protection of outside sections, and the use of cushions over cases, etc. This matter of protection in our northern localities I have considered very important, and have practiced it always. It is one of the considerations which make the kind of hive I use so valuable. There is a dead-air space under the cover of this hive, even with the cushion on. They are kept on my hives except in the very hottest weather, and, some seasons, all summer.

Lake Geneva, Wis. WM. M. WHITNEY.

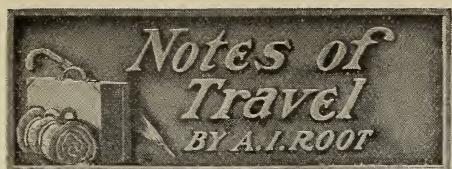
[Dr. E. F. Phillips, of the United States Department of Agriculture, has probably given this subject of parthenogenesis, so far as it relates to bees and queens, more thought and study than any other late investigator. We should be glad to hear from him on these points.—ED.]

SWEET CLOVER A BIENNIAL.

Referring to the first Straw, p. 1167, please look into this matter further and see if sweet clover (*Melilotus alba*) is not a biennial, the nature of which is to die after seeding. This may help to account for Dr. Miller's observation. However, the constant cutting may still be true for young plants, while old ones will die of themselves. E. J. WICKSON.

Berkeley, Cal., Oct. 1.

[Prof. Wickson, dean and acting director of the California Agricultural Experiment Station, is correct, entirely so, and we hasten to offer our apologies for the implied statement to the contrary on 1107.—ED.]



MORE ABOUT THE WIND CAVE OF THE BLACK HILLS, SOUTH DAKOTA.

I forgot to say in my last that Minnekatah is the name given by the tribe of Sioux Indians, meaning hot water—*minne*, water, and *katah*, hot; and the Indians had the same opinion that the white people have now, that these hot springs possess rare medical qualities right from the hand of the great Father direct. A great battle was fought between the Sioux and the Cheyennes for these same hot springs; and Battle Mountain, the highest peak in the Black Hills, was where this battle took place. This mountain is plainly visible all along the route from Hot Springs to the cave. Of the 100 miles that have been explored already, less than a dozen miles have been mapped out by the guides and fitted so that visitors can get through comfortably. Of the 3000 chambers, the largest one, called the Fairgrounds, is said to cover three acres. I confess that, when I looked over the Fairgrounds, even with the help of the magnesium lights, it did not seem to me as if there was more than one acre; but, of course, there have to be supports for the rocky roof at intervals, not far apart, or the whole of it might come down. The largest room in Mammoth Cave is said to be only two acres.* The reason why visitors are not conducted over more of the 100 miles is the expense of fitting up paths and passageways so one can get through comfortably. The cave seems to have been formed by paralleling crevices or fissures side by side, running up and down, with but little regularity. Now, besides up-and-down crevices there are eight tiers of chambers, one above the other; and the water rushing through these crevices, and eight stories, through ages, has worn off the sharp corners, forming the strange figures that now impress the traveler. It seems to be much like the galleries in an ant-hill; or, if you have never seen a torn-down or partially torn-down ant-hill you might liken it to an enormous sponge. Wind Cave is unlike Mammoth Cave in its decorations, in several respects. First is the curious box work seen almost all through the cave. It resembles a good deal the box work in a postoffice or secretary. This queer formation is supposed to have been brought

about something like this: This rock or mineral, by the action of water or something else, cracked to pieces so as to form cubes. These cracks separated enough to let in water with highly charged minerals. These minerals were deposited, and finally became petrifications, hard and shiny like agate. Well, some different kind of water must at some later time have dissolved and washed out the rock, leaving this agate petrification sticking out like the cells of a honey-comb, except that the cells are square instead of being six-sided. This box formation is found almost all through the cave. Some of the boxes are just about as large as those in a common secretary for filing away letters. Others are large enough to make a good-sized book-case. Some of them stand horizontally, so they might hold books or letters, while others look straight down on you from the ceiling overhead. Then there is another formation all through the cave, which looks like popcorn. I forgot to say this box work is many times almost transparent, and at other times it is shaded or decorated with different colors or shining crystals. The nucleus of the box work is said to be dolomite. As you go down into the ground, as in Mammoth Cave the air becomes warmer; but here we have to go down 500 feet to find a change of temperature of only one degree. I am told that people afflicted with asthma recover instantly on going down into the cave. The air is said to be more highly charged with oxygen, like that in Mammoth Cave, than that outdoors. I know this: That, although I was not feeling at all well at the time, I made the trip (lasting about three hours) without the least bit of fatigue. I think we sat down and rested only once. Everybody who goes into the cave is required to give his name and residence, on a book. This is done in order to make sure nobody is lost by accident. So far every one who has ever gone down into the cave has come out all right. The government does not allow any intoxicating liquor to be sold within twelve miles of the entrance. Hurrah for Uncle Sam! We hope he will keep that up, and keep going a little further. There is no necessity whatever for any artificial stimulant in making the longest trip through the cave.

There are about a hundred different and named curiosities there, connected with some fact in history. I can mention only a few of them. The Bride's Chamber is one of the first, 155 feet from the mouth. A young couple wanted to get married, but the girl's parents objected; but she finally promised her mother that she would not marry any man *on the face of the earth*, without the mother's permission. You see this did not include the underground cavern.

When I gave a description of Mammoth Cave in GLEANINGS for May, 1885, I mentioned there a Bride's Chamber story almost exactly like the above. Our guides, however, were so positive that a couple did get married in Wind Cave, as I narrated, that I think both stories are likely true. This young couple who were married in Wind

*This great chamber was discovered by George Stabler, in 1892. One stormy day, when no visitors were expected, this guide, with a little exploring party, started out with a large ball of twine, fastening the end where it had already been explored. Before they reached the end of the ball they came to this great underground cavern. At one point an elephant's foot sticks down through the ceiling as if the great beast had broken through.

Cave probably had heard of the story of the marriage in Mammoth Cave. Like Mammoth Cave, Wind Cave has a "Bottomless Pit." The one in Mammoth Cave is only 70 feet in depth, while the one in Wind Cave is 90 feet deep; so you see the pit in the latter cave is 20 feet *nearer* being "bottomless" than the pit in Mammoth Cave.

Lincoln's Fireplace was the next. The kindling is all placed ready to light—even the pine knot to light him in his studies—all rocky petrifications. It is well the guide is along to give you the name of things or else you would not guess them yourself or see the point. The Prairie Dog and Mound is one of these. When he says, "There is the dog and there is the mound," you see it very plainly.

In the Chamber of Petrified Clouds the burning magnesium ribbon makes the clouds very plain on the ceiling overhead; and it takes no great stretch of the imagination to believe you are looking at fleecy clouds in reality. A little further on, the ceiling is spattered over with snowballs thrown up against it by the boys. There they are, sure enough, when the guide tells you what it is. There are so many postoffice boxes all through the cave where people have left their cards containing their names and address that I do not know but I got them mixed up a little. It would take a long time to read them all over, especially where you have to brush off the dust that has been accumulating for years past, and you might not find the name of anybody you knew there, even then.

The Liberty Bell, with the crack in the side, is found in Independence Hall Chamber.

The G. A. R. Hall contains a dome that is said to be 110 feet above the floor. This hall was dedicated at a soldiers' reunion in 1899, when there were 96 old soldiers present. Their names are to be seen there, with their respective regiments, etc.

The Cliff-climber's Delight is 60 feet high. Think of a room under ground being large enough to give place to a cliff of those dimensions!

Now, I am a little mixed up about the Garden of Eden, the Mermaid's Resort, and the Pearly Gates. I can not tell from memory just which one; but in one of them we are told to bow our heads so that we do not brush off any thing overhead. Then we are bidden to sit down and look overhead while the guide burns a magnesium ribbon. Well, the ceiling overhead was studded with a sparkling sort of frostwork like little pine-trees with their tops growing downward. Each little tree was of shiny glistering whiteness. It had branches and foliage. I should think some of the plants extended out 6 inches from the ceiling and the sides of the walls. They were so frail, however, that even your breath, let alone touching them with your hands or clothing, would probably throw them down. I declared they *were* growing plants; but the guide assured me that careful measurements seem to indicate there has

been no growth since the cavern was discovered. The government absolutely forbids carrying away any of these curiosities, even so much as a grain of sand; and the two guides, one in front and one behind, keep pretty careful watch to see that there is no violation of this rule. If there were any water in the cave, or any dampness, I could understand how this crystallization might be growing; but, if I am correct, there has never been found any trace of water, even in the lowest chamber.

After the Garden of Eden we take the Corkscrew Path and come to the Glacier. A little further on we come to the Sportsman's Delight, where a goose hangs suspended from the ceiling. "The goose hangs high," and has continued to hang high, no man knows how long. Besides the sparkling scintillations from gems that coat the walls and ceilings, innumerable colored geological specimens confront one at every turn; and you will find every conceivable geometrical figure as well as every color.

There are many stories about people getting lost in the cave. It is said that one of the guides once failed to carry enough candles; and when his magnesium light had given out, his candles were gone or mislaid, and not even a match was to be had in the crowd. By getting down on his hands and feet he managed, by crawling and feeling his way, to get out by daylight next day. It seems to me that, where so many people have been treading for years, they ought to be able to follow the beaten path; but there are so many cross-routes, and crooks and turnings, he might be like one lost in the woods, going around in a circle and getting further and further away from the entrance. With extra guides outside, however, to assist in hunting up the lost, there ought not to be very much trouble. At the present time an extra supply of candles is always taken along, I am told.

Just a word in closing about the wonderful blast of wind that is constantly going out of or into the cave. Some years ago the United States government sent out a commission to explore breathing caves and breathing wells. Somewhere in the Eastern States there is a well that breathes or blows out quite a blast of air at certain periods, and at other times a strong current of wind goes down into the well. Another strange thing about this particular well is that it contains icicles, even in the summer time—at least report says so. Well, this government committee found the story true or partly so. During severe winter weather, when the thermometer was down a good deal below zero, a current of zero air would go down into that well for several days, freezing the water in the well and in the caverns that opened up from the bottom of the well. In this way the quantity of ice was so great in and around the well that a good many times it would not thaw out before summer, resulting in not only a freezing atmosphere coming from the well in summer, but *bona-fide* icicles on the wall of the well. It seems to

me such a place should be explored and opened up, and these air-currents utilized for some purpose. Perhaps some of our readers can tell us more about the breathing wells and caves found in different places throughout this wonderful earth which the kind and gracious Father has given us to live in, to study, and to explore.

O Lord, how manifold are thy works! in wisdom hast thou made them all: the earth is full of thy riches.—PSALM 104:24.



Think not that I am come to send peace on earth: I came not to send peace, but a sword.—MATT. 10:34.

Woe unto them which justify the wicked for recompence. . . . and listen to bloody men whose right hand is full of bribes.—ISA. 5:23; PSALM 26:10.

Behold the Lamb of God, which taketh away the sin of the world!—JOHN 1:29.

I clip the following from a recent number of that excellent home paper the *Rural New-Yorker*:

Hen-roosts are so systematically raided in Pike Co., Illinois, that the supervisors of that "district" want the State legislature to enact a law making chicken-stealing a penitentiary offense. The supervisors explained that the hen crop of the State was greater than its wheat crop, and that fully one-fourth of the chicks were stolen annually. So earnest was the plea that the Society of Supervisors, Clerks, and Commissioners of Illinois, which closed its convention in Waukegan, October 11, adopted the resolution.

If any thing moves my indignation, it is to hear about thieves stealing the chickens reared with great care and pains by farmers' wives and children scattered throughout our land. It is indeed commendable to see not only the good wife but the boys and girls engage in poultry-raising on their own farms or around their own homes. This outdoor work takes them out under God's clear sky, and puts them in touch with nature—yes, just as bee-keeping puts folks, little and big, in touch with God and his works. Some of you may remember that I mentioned stopping for a few days at a farmer's home in the southern part of this State. With much pains the good wife had got a fine lot of chickens of some choice breed. Her last work at night was to shut them up where rats and other vermin could not get them; and her first work in the morning was to let them out and see them enjoy their liberty and their food. Just a few days before my arrival she went out with her dishes of feed, opened the door, and called, but not a chicken came forth. A thief had come in the night and taken the fruit of all her hard labor. She sat down and cried. Now, friends, let me explain to you that this woman was under the doctor's care for consumption. Some of the time

she could hardly speak a loud word. She had been raising the chickens so that she might be as much as possible in the open air. They were on a rented farm, and were obliged to use a degree of economy that many of us know little about. All the members of the family were working early and late, striving hard to make both ends meet; and yet some wretch in human form came and robbed her of the result of all her hard work from early spring to the middle of summer. But that is not all. Poultry-thieving was so common in that locality that it was almost an every-day (or every-night) affair. On one occasion the farmer got out, saw the thieves, and ordered them to stop. When he threatened to make them trouble they picked up a gun and ordered him off. Now, I can not remember the full circumstances; but either this same thief or another one like him was caught as he was going into the city of Dayton. He laughed at his pursuers; and when they tried to take the law on him, through some technicality he got off scott free. Do you wonder the farmers in that region are becoming discouraged, and that their wives are becoming discouraged, and begin to say it is no use to try to raise chickens or any thing else? When I heard this story I wondered that circumstances were so different there from what they are here in our own county. We let our bees stand out in the open fields the year round. Our chickens roost in open sheds, without a door or padlock. Fruit and other property are all around, and as a rule it is safe from one year's end to the other. Do you want to know how this comes about? Medina has no saloons, and has not had one for more than twenty years. The thieving done in the southern part of the State, which I have just been telling you about, was close to the great city of Dayton. That city has a population of 86,000; and by the aid of Dun and Bradstreet I have been able to count up two hundred and fifty-six saloons! I do not know much about Pike Co., Ill. Will some of our readers who live there or in that vicinity tell us whether this statement in the *Rural* can really be true? and will they also tell us about the saloons of Pike Co.? I find there are two large cities close to Pike Co. Hannibal, Mo., has about 12,000 people; and that city has 38 saloons, or about 3 for every 1000 inhabitants. Quincy, Ill., with 36,000 people, has 89 saloons, to say nothing of the wholesale liquor-stores—pretty nearly 3 saloons to each 1000 inhabitants. My impression is that the saloons in Hannibal are shut up nights and Sundays. If they were not, Gov. Folk would be after them. In Quincy, I am afraid they run all the time.

Do you wish to know what saloons have to do with stealing chickens? Well, the man who will steal chickens, especially from the farmers' wives and children, is usually a man who will do anything to get the whereabouts for drink. He will steal the shoes off from his baby's feet in zero weather, prompted by the hellish appetite. The saloons are

places that harbor thieves of all sorts. They are known at the saloons, they are all patrons of saloons, and the saloon-keepers have facilities for getting them out of a scrape and eluding justice.

Our second text tells us something about the way in which the police are sometimes linked in with saloon-keepers and the whisky business. They laugh at the farmer and his hard work. If a man who steals chickens will divide his spoil with the saloon-keeper and with the policemen who hang around saloons they will get him off, no matter how plain the evidence is. I earnestly hope Pike Co., Ill., will succeed in making chicken-stealing a penitentiary offense; but if they do not get rid of their saloons I am afraid they will never get the culprit in the penitentiary, no matter how plain the evidence is. Pike Co. should start a big wave of protest and indignation. The people should rise up in a body, and declare that this iniquitous business shall stop. The officers of the Anti-saloon League will gladly assist them in working up a sentiment that will make their county a *dry* one; then the whole State will set to work to start a reform such as they are having in Indiana—yes, and here in Ohio. Let me digress a little.

Some years ago, with a friend I happened to visit a very nice residence, recently planned and built by a man of considerable wealth. We stopped to see his greenhouse and his exotic crops; and as we were looking over the premises, among other things he invited us into the kitchen. Said he, in substance:

"Gentlemen, do you see any flies here? Now, although this is the kitchen, and here is the kitchen back yard, there is not a fly. Do you know why? It is because we starve them out. There is not a thing to bait them anywhere on the premises, and so there is nothing for them to live on. There are no slops pitched out into the back yard; no dirty dishes are left one minute uncovered; during all our cooking, dish-washing, etc., our help understands there is not one scrap of any thing to be left to bait and encourage flies. The slops all go off from the building in a sanitary slop-drain. The dishes from the table are closed up fly-tight, as you see, in the sink where they are washed. Then they are washed so quickly no fly gets a chance to take a sip. It is some trouble; but don't you think it is worth all it costs?"

I should mention, also, that his stables were quite a distance from his house, and the manure-piles were so handled that there was no breeding-place for flies there. Now, friends, it is the same thing with rats. Every little while when I come home from my trips I find rats had gotten to be rampant again, and the folks say they are so bad that they can not do any thing with them. They will not go into traps, they will not eat rat biscuits, etc.; but when I get around they do *both* and get cleaned out. Rats and chicken-thieves and flies and all other like nuisances need *energy* and push

and determination. You want to get right down mad. Yes, it is *right* to get "mad" at rats and mice and flies and chicken-thieves. I was going to add that it is right to give the whole crew a dose of rat poison, but I should have to take it back when I come to the last one of my three texts. That man who kept the flies away from his kitchen and back yard had an easier problem than we have here at our factory. The greater part of our hands bring their dinner in pails. They not only scatter the crumbs where they are eating, but if the good wife puts up more than they need they will persist, in spite of all my pleading, in throwing good and wholesome food around on the ground. While this is going on it is next to impossible to be entirely free from rats. Do you want to know how I manage? Well, we tried different kinds of traps, and smoked the traps. Then we have a dog that makes it his special business to make it "hot" for every rat that comes "out in the open." At times we have had a weasel to chase the rats out of their holes. When the boys said the rats would not eat our biscuit I told them to send to the grocery for a tumbler of soft cheese—the kind that comes in tumblers; but the grocer was sold out of the cheese. Then they *forgot* to get it. Finally, when they did get it they were "too busy to hunt rats."

Perhaps I might as well acknowledge the rats got into my winter apples where they were placed in the woodshed before they were put into the cellar. But I took some rat biscuit and buttered it on both sides with the soft cheese, then crumbled it up fine (so children could not well pick it up), and pretty soon there was a smell of dead rats around the premises. That is one bad thing about poisoning; but a dead rat is a far better rat, in my opinion, than a live one, even if it does make a bad odor when you can not find it. *Mrs. Root* keeps mice and rats off the premises by having wire-cloth screens at every window (especially those in the cellar), and also screen doors. If a rat or mouse should get inside we trap it or poison it. The screens not only keep out rats and mice, but they keep out flies. It is some trouble; but "there is no excellence without great labor." The modern way of building houses and cellars with cement floors should effectively enable one, without very much labor, to keep out rats and mice. It is a disgrace to any home or neighborhood to have the filthy creatures around. You ought to be ashamed of it. In the same way it is a disgrace to any neighborhood or community or county to have *chicken-thieves* around. You ought to be ashamed of that too. Form a protective association; offer a reward for the predators, and hustle them into the jails and State prisons. But even after you get them there, there is another trouble. Satan is wily. That same number of the *Rural New Yorker* contains something more I wish to copy. Just read it:

The Central Protective Association, which recently held its thirty-first annual meeting at Atchison, Kan.,

discussed the matter of trying to secure a member of either the Central Protective Association or of the Anti-Horsethief Association, on the State Board of Pardons. It is claimed that, after the organizations go to the trouble and expense of hunting down and convicting a criminal, he is pardoned after he has served a year or two, and is given an opportunity to resume his crimes. When Governor Hoch was making over his pardon board, W. H. Smith, of Atchison, secretary of the association, was a candidate for a position on the board, but was shelved for W. I. Bidle, of Leavenworth, who had a stronger political pull. Smith was indorsed by the Anti-Horsethief Association, and the two organizations believe that, since they can boast of a membership of 50,000 members in territory in and adjacent to Kansas, the application of Smith should have been given more consideration. Finally a resolution was adopted authorizing the two associations to keep posted, and demand that a member of one of them be given the position whenever there is a vacancy on the board.

You see, friends, that, after the horse-thieves are convicted, probably at great expense and pains, and sent to the penitentiary, they have a scheme for pardoning them out. About a year ago, in a town near Cleveland the Anti-saloon League, after much pains and expense, convicted two saloon-keepers. They were old offenders, and slippery fellows, and it was a hard matter to secure conviction. But they finally got the culprits sentenced to pay a heavy fine, and to serve a long time in the workhouse. What happened? Why, a member of the "pardoning board," of Cleveland, pardoned these two rascals out almost immediately. The only excuse he gave was that, in his judgment, the fine and the term in the workhouse were *excessive*. I do not believe he ever inquired into the matter particularly. They told a pitiful story, and he set both rascals loose to go back to their old trade. I felt so indignant over the matter that I wrote a letter to the superintendent of the Anti-saloon League, and told them this pardoning official should be deprived of his power to grant pardons to such chaps. I said I would myself subscribe fifty dollars to have that man shorn of his power and these two saloon-keepers put back in the workhouse where they belonged. *And the thing was done.* Now, I do not like to boast of what I have done, and I do not bring that thing up here for that purpose; but I do it to let you know that one single person, when he gets real mad in "righteous indignation," can do quite a little to block the schemes of the wicked. If I remember correctly, some very fervent prayers went along with that fifty dollars.

Now for the last part of our text. While we are doing all we can in the way of law enforcement, there is another thing to be done. After you get the saloons out of the way, build up Sunday-schools. Take these thieves, before the saloon-keepers get hold of them, and expound to them the gospel of Jesus Christ. I wish to give you a little illustration of what I mean. Those of you who have taken GLEANINGS a good many years have read this story; but I think it will bear repeating, especially to our newer readers.

Shortly after I enlisted under the banner of "the Lamb of God that taketh away the sin of the world," I found a young man in our

county jail who was there for stealing chickens. He came out into the country with a horse and wagon from Cleveland, and loaded up from hen-roosts. He was caught, and was awaiting his trial, with the prospect of going to the penitentiary. He had served one year there already for this very offense of stealing chickens, and he was on his way there again. He was an ugly fellow. He not only swore and drank, but he cursed, and used tobacco; but he declared he would never go to the penitentiary again alive. He said they could carry his dead body there if they chose, but *not* while he had a breath to draw. He was kept in jail awaiting his trial a month or two. I thus had a chance to get well acquainted with him. Before his trial came off he was reading his Bible, and was a changed man. He knelt with me on the floor of that stone cell, and promised God that he would go to the penitentiary or *anywhere else* if it was the Lord's will. When the time of trial came, his lawyer advised him to plead not guilty. I told him the great Father above was ahead of all lawyers in the universe. Fred told an honest story, not screening himself a particle, with the full expectation of going to the penitentiary. The judge was astounded. It was a new revelation to him in criminal work. I was not present at the trial, but Fred came into my store with a smiling face, and greeted me, saying:

"Mr. Root, it turned out just as you said. I told the truth just as you advised, owned up the whole of it, and the judge said the penitentiary was made for boys who could not be made good in any other way. He said he himself would guarantee that I would behave myself *without* going to the penitentiary. Now I want to go to work. Can you give me a job?"

Dear friends, it has been my happy privilege to give jobs to hundreds of people in the years that have passed since then; but I do not know that I ever felt happier in giving any one a job than I did in setting Fred at work. In a little while he was helping me in a mission Sunday-school. The boy who, a few months before, had been stealing chickens from poor hard-working women was now in the Sunday-school work—yes, and teaching as best he could, some of his old cronies, about the Lamb of God that taketh away the sin of the world. A little later Fred became superintendent of a mission school back in the country, away from any town. Ever since the time he came out out of jail he had been in mortal fear that somebody would throw it up to him about his old life, and call him a chicken-thief. He feared his old temper if he did. He said in substance:

"Mr. Root, if they will let me alone I will do the best I know how. I will spend my life in trying to make up for the wrong I did when I was against God and against humanity and everything. But if somebody should throw it up to me, and call me a chicken-thief, I am afraid I could not resist the temptation to knock him down."

I assured him the Lord would give him grace and strength; but he worried about it. I have seen him sit down and cry when contemplating his old temper and his own weakness. I told him that, in spite of all that I or any of his old friends could do, sooner or later he would have to meet persecution just like other Christians, and that, very likely, sooner or later he *would* be called a chicken-thief. One Monday morning he came up where I was at work, and with one of his peculiar smiles said:

"Well, Mr. Root, it has come."

I did not understand him at the time, and said:

"Why, Fred, what has come?"

"Well, Mr. Root, you said that, sooner or later, somebody would call me a chicken-thief, and it has come to pass. I was called a chicken-thief yesterday in Sunday-school."

Then he smiled again. It was now my turn to smile. Said I:

"Well, Fred, did you knock him down?"

"Why, Mr. Root, I could not very well, because *it was a woman*."

Then we both laughed. He explained that, when he got over to the Sunday-school the day before, the teachers and pupils were all over in one corner of the room discussing something. He knew there was trouble by their looks. He went up and stood by his table, and waited. Pretty soon a woman came from the group, and said something as follows:

"Mr. Cashner, it has been noised around this neighborhood that the superintendent of this Sunday-school is a chicken-thief. Now, I come to you frankly and ask you to tell me the truth about it."

He replied:

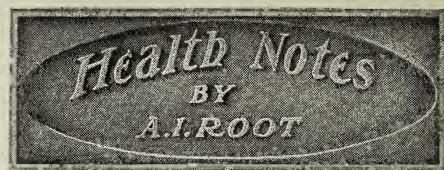
"My dear madam, it is true I was *once* a chicken-thief; but by God's grace I am not one now."

She went back to the crowd in the corner, and they discussed the matter and finally decided he should go on with the school. Perhaps I was a little to blame in the matter. I had so many mission schools started at that time, that, as the days grew shorter, I was unable to attend to them all. Fred had been going with me for several Sundays as a teacher; and without explaining who he was or where he came from I told the school that he would take my place as superintendent.

Now, friends, the above illustrates how God in his great providence permitted me to take a chicken-thief from jail, and from the penitentiary that stood open just before him, and place him at the head of a country Sunday-school as its superintendent. When Christmas time came they made their superintendent a present of the handsomest Bible that could be bought anywhere in this region; in fact, it was so large that it was a pretty good load for any one to carry.

Now, then, if your neighborhood is infested with chicken-thieves, don't you believe it is somewhat your own fault? At the same time that Jesus came into the world to bring a sword, he also brought the gospel, and he expected them to work together. But the final hope of redemption from the sin or sins

that afflict humanity is "the Lamb of God that taketh away the sin of the world."



GRAINS, FRUITS, AND NUTS — ESPECIALLY CHESTNUTS.

A year ago I had something to say about chestnuts. I have now five nice little chestnut-trees on my place in Michigan. Two of them I expect to bear nuts next year. At my home place here in Medina we have a Spanish chestnut-tree as large as a fair-sized apple-tree. It has had burrs on for the past three years, but not a burr contained a nut until this year, when just one burr contained one great beauty of a nut; and this one nut, when roasted, was just as sweet and delicious as any of the small native chestnuts, although it was all of four times as large. As to why this tree bore burrs and not nuts for two or three years, I can not answer, only that our experiment stations suggested it needed fertilizing from blossoms from other trees, and there was no other chestnut-tree of any kind within perhaps several miles of this one. We hope that, since it has begun bearing genuine nuts, it will continue.

While I write I am greatly enjoying chestnuts that we buy now at a moderate price at our groceries. After my trip through the West I was for some time out of sorts. I had no appetite, and nothing tasted natural. When chestnuts were in the market, however, I felt instinctively they would hit the right spot, and they did. I roasted them on the stove or in the oven, and at the close of each meal I ate a pretty good-sized handful; and these, with half a cup of milk, are to me the most delicious food I ever found in this whole wide earth. They should be roasted just right, and put on the table hot. It is a little slow work getting the shells off, it is true; but this gives you an excellent opportunity to have each nut thoroughly masticated. Now, you just try some roasted chestnuts and milk, and see if you do not agree with me that these nuts are one of God's greatest and most precious gifts. Just as soon as I got hold of them my appetite began to come back, and my strength began to come up. They are exceedingly nutritious, and I have always found them easy of digestion when thoroughly chewed, and not swallowed until the nuts are a smooth creamy mixture. Try it, ye friends who have a poor appetite and impaired digestion.

CHESTNUTS.

The above was dictated for our issue for Oct. 15, but did not get in. Since then I

have been having a good-sized handful of roasted chestnuts after each meal (three times a day), and it has just built me up strong and well. Instead of getting tired of them, as Mrs. Root thought I would, I enjoy them more and more, and just now I feel like saying, "Doubtless God *might* have given us a more luscious food than the chestnut, but doubtless he never did." The rest of the family eat them occasionally, but they do not share my enthusiasm and keen enjoyment for them. I might be tempted to think I am peculiar in this respect. But look here, friends. You go into any of the large cities in this country at this season of the year and you will find Italian venders of roasted chestnuts everywhere. They would not carry on the business to such an extent if there were not a universal demand for the nuts.

A few days ago, in order to catch a car I had to go without my supper. I had only two minutes; but I looked up a vender of roasted chestnuts and told him to pour ten cents' worth into my pocket, and they made a very good meal. Do not chide me for making so much ado over something to eat. Chestnuts are my *medicine*; and I greatly prefer medicine, when I *have* to take it, in the shape of something good to eat—say grains, fruits, and nuts; and I am sure it is largely if not entirely due to chestnuts three times a day that I am now strong and well, and fleshing up every day. With chestnuts I always want a cup of cold milk. Without the chestnuts I would not crave the milk; and without the milk I would not crave the chestnuts so much. One seems to supplement the other, and they both digest perfectly.

I now wish to give you another illustration of the value of nuts; and please do not make fun of me nor stick up your nose, any of you, at my illustration. When my father first moved into the woods of Medina Co. he chopped down the trees and cleared a piece of land and built a log cabin for his young wife and the children that came stringing along. I was the fourth one, and my early recollections are all about that log house and the forest trees around it. There were great hickories with their wealth of shellbark nuts; and there were beech-trees that gave such crops of beech-nuts that it was a common thing to raise pigs to be fattened on these same nuts. If I am not mistaken, everybody used to call the pork produced by fattening the pigs on nuts or "shack" the very best quality of pork—even better than that where they were fattened on grain. Now, do not protest when I tell you that I am fattening up on the nut diet, just as the domestic animals got fat on the nuts that they rooted out of the leaves in the woods.

I think we can call chestnuts and other nuts God's medicines. He caused them to ripen at just the time we need them, to make a "balanced ration" with the fruits and grains that ripen in autumn; and if you are inclined toward a vegetarian diet the nuts will take the place of animal food better than any thing else I know of.

Do you say that not everybody can afford chestnuts when they are 20 cents a quart? My good friend, it costs me about two cents a meal for my chestnuts, and I use more than most people care to. May be the price is a little greater than for some other kinds of food, but not much if any more than eggs; and if you can manage to have the nuts take the place of the medicine you have been using, I am sure you will find them cheaper than medicine; and, oh how much nicer than any medicine ever invented! The nuts are not only God's medicine, but *God's gift*. If you should get a fit of enthusiasm to plant some chestnut-trees, and grow your own "medicine," then that would be better still. A few days ago a nice young lady came into our neighborhood with some chestnuts that she had picked up under the trees on her father's farm, only a few miles from Medina. It gave me the "fever" to go chestnuting just as soon as I found out that there is a sandy ridge where chestnuts were growing and in bearing in our own county.

THE MUSHROOM BUSINESS.

I have inquiries every little while about the profits and particulars in regard to the above industry, and think best to submit the following from our old friend T. Greiner, clipped from the *Farm and Fireside*:

During a trip through New Jersey I came within sight of the Shrewsbury catsup-factory, and there saw what remained of three large greenhouses. I was told that these greenhouses were put up by the proprietors of this canning or preserving establishment for the very purpose of growing mushrooms needed for canning, for flavoring some of the canned goods and catsups, etc., and that thousands of dollars had been expended in making the equipment of these houses complete and best suited for the purpose of producing mushrooms. Notwithstanding these facts, and the other that skilled help was employed in the undertaking, and that no expense was spared in the purchase and careful preparation of the manure, the results were so meager and uncertain that the undertaking was entirely abandoned.

Even the best "new-culture" spawn would give only an occasional crop, never a full one, and at times nothing worth mentioning.

This, together with the recent experience of some neighbors of mine who also engaged in mushroom-growing on a somewhat more extensive scale, under apparently very favorable conditions, and with a complete equipment, but failed to produce even a single basketful of mushrooms, again proves to me that there is hardly a crop that has more chances of disappointing the grower than mushrooms. The wise reader of *Farm and Fireside* will not go wild over the brilliant prospects of the immense profits to be found in the mushroom-growing industry so often exploited in the columns of some of the rural periodicals.

I confess the above is rather discouraging, and it seems to me some of our experts ought to learn how to make a success with mushrooms every time; but my experience has been just about like the above. When I took the most pains to have everything just right, there was scarcely a mushroom; but after I had given it up, and put on another crop, they came stringing along for a year or two, sometimes so as to pay very well. If any of our friends can tell us of a successful mushroom cellar or cave, and one that continues to succeed year after year, we should be glad to know about it.

PROF. HOLDEN'S CORN TALK, ETC.

On page 1078, Aug. 15, I made a guess that Prof. Holden had, at some time, been a pupil under Prof. Cook. See what Prof. Holden has to say in regard to it:

Mr. A. I. Root—I am greatly pleased with your article in GLEANINGS describing the corn-day at Chippewa Lake Chautauqua. I fear that you have given me too much credit; but you have discovered my real motive back of the entire work, better than anybody else. It is true that I had four years' work under Prof. Cook, and was also associated with him for three years and a half at Michigan Agricultural College. Your kind words were greatly appreciated, and I wish I might be able to carry out in some degree the splendid spirit of your article. If it is convenient I should like to have a dozen copies of the journal.

Ames, Iowa, Nov. 5.

P. G. HOLDEN.

And this reminds me that we ought to have a corn-book if there is not one already, that gives not only Prof. Holden's corn-talk but ever so much other matter that has lately been brought to light in regard to this great national cereal. Who can tell us about a corn-book? If there is not one, who will get out one that covers the whole subject? And, by the way, our different States have probably sent out bulletins on corn-growing. If any of the friends can mail me copies of such bulletins I shall be exceedingly grateful.

SABBATH-BREAKING AMONG THE HUNGARIANS.

Mr. A. I. Root—Some time ago you wrote about that boy coming one Sunday morning from the lake with a log-chain, etc. No doubt you felt very badly about it. Now, what about that Hungarian who went fishing on Sunday in Chicago? Were you not a little hard on that Hungarian and that boy too, Mr. Root? I am one of those Hungarians. I came to this country when I was 18. I am now 55 years old, but I would say that nobody goes fishing on Sunday in the old country; but some of them, when they come here, leave their religion behind. Mr. Root, about 25 years ago I saw one of your advertisements, so I sent for a sample copy and catalog. Well, that gave me the bee fever, and I am not over it yet. Don't feel hard toward me for writing this letter.

P. A. SCHLAGAL.

Howard Lake, Minn., August 23.

All right, friend S. Your point is a good one; but I did not intend to blame the boy who went fishing on Sunday, much if any. If the father asked him to go it would hardly be expected the boy would refuse. I am exceedingly glad to know that people do not go fishing on Sunday over there in the fatherland, where you came from; and so far as thinking hard of you for writing this little criticism, it is just the other way. I am exceedingly glad and thankful to get such letters as this, and all the more so where they take me to task in the very kind way you have done. It is through such letters as this that my knowledge of things is gained of this great wide world so full of people, and, I think I may honestly add, so full of people whom I love.

THE WRIGHT BROTHERS AND THEIR FLYING-MACHINE AT THE PRESENT DATE.

In answer to a lot of inquiries in regard to the progress the Wright Brothers are making, I am permitted to give the following:

Dear Mr. Root—If your readers are really anxious to know what we have been working at this year we have no objection to your telling them. We have been engaged in designing and building machines suitable for actual service rather than mere experimenting, and have given special attention to perfecting motors not only light but sufficiently strong and reliable to run for hours without attention.

WRIGHT BROTHERS.

Dayton, Ohio.

It would seem from the above that they believe their experiments of last season have sufficiently demonstrated the practicability of their machine, for they made several flights, staying up in the air until the gasoline was exhausted. Their next work will probably be with a machine for "actual service," as they state it. You may rest assured, friends, that I am always anxious to report progress from the Wright Brothers or anybody else as soon as I know the statements that appear in the papers are fully reliable.

RATS—MORE ABOUT THEM.

After what I said in regard to the rats eating our winter apples, on another page, we had more trouble. They would not eat rat biscuit, even when it was soaked in toasted cheese. A rat in some way got into our apple-cellars; and when every thing else failed I closed the room up tight and then "dosed" it with brimstone fumes until I thought every thing must be dead. But, even after that, every day we would find a little bit gnawed out of a good many of our finest winter apples. Mrs. Root said if I would get her a good steel trap she would catch that rat. After smoking the trap in the kitchen stove in order to remove any scent that might remain on it from former use, she baited it with a piece of beefsteak securely tied on. Then a piece of cloth with a small hole in it was spread over the trap so that just the meat was visible through the hole in the cloth. Within 24 hours we had two of the "varmints."

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VIEWS OF CHICAGO. Big buildings, stores, hotels, parks, stockyards; any special view you wish. Five views, 10 cts.; 13 for 25 cts, postpaid.

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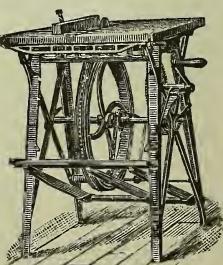
This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

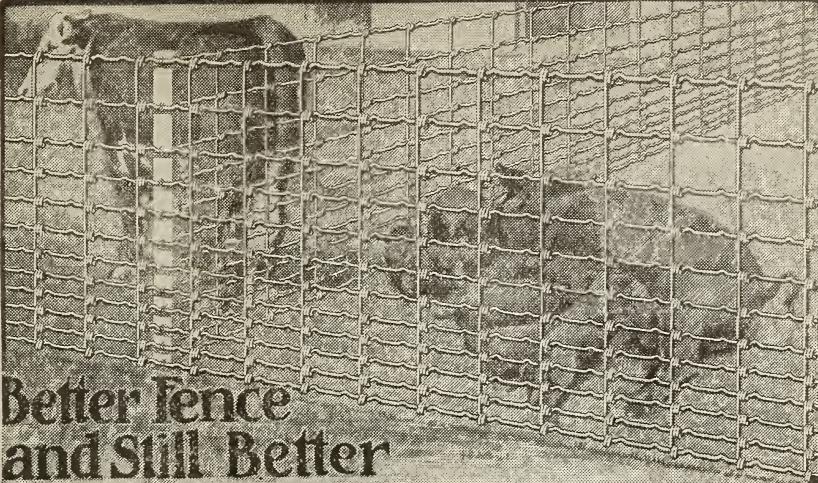
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It takes 50,000 miles of fence every month to keep up with the American farmers' orders for AMERICAN Fence. That's enough every month to go twice around the world—and it's over 80 per cent of all the wire fence made.

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We keep the best Fence brains in the country always at work, seeking constantly to improve

AMERICAN FENCE

And on account of making more fence than is made by all other fence makers combined, it costs us less per rod of fence to work out and make fence improvements than it would cost any other fence manufacturer.

And because we can distribute the cost of improvements over so many million rods of fence in the year, we work out improvement after improvement every year without increasing the cost of AMERICAN Fence to you.

Better galvanizing now makes AMERICAN Fence—without increase in price—cost much less—figured on a per-rod per-year basis, because it lasts much longer.

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Drop me a postal—tell me how much fence you need this year. I'll write you personally about AMERICAN Fence and send you this registered combination key-ring, screw-driver and bottle-opener.



HEAVIEST FENCE MADE
15c to 35c Per Rod
BROWN FENCE
WE PAY FREIGHT

No. 9 Steel Wire. Weighs $\frac{1}{4}$ more than most fences. A fence that will not rust.

Send for Fence Book showing 133 styles. Brown Fence & Wire Co., Cleveland, O.

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DO YOU RAISE CHICKENS?

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Hatched in January, February and March, they make big profits. Hatch them in a

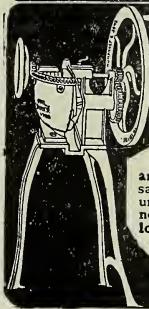
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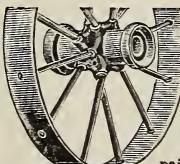
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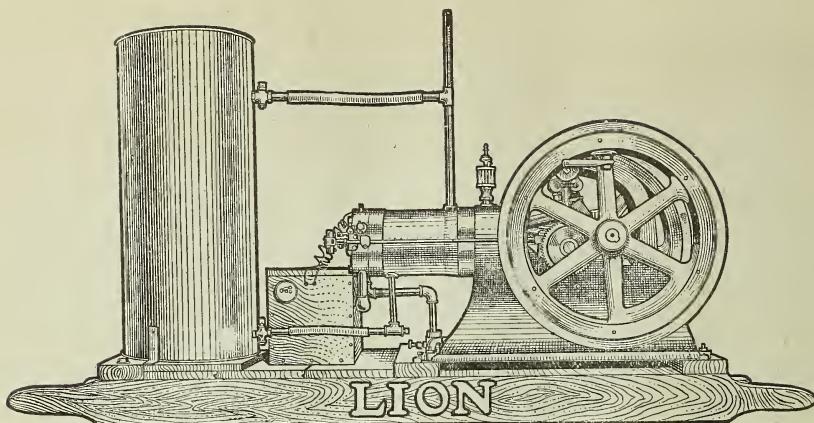
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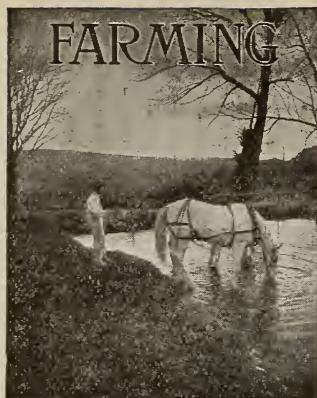
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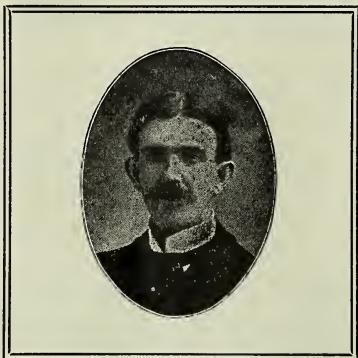
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is the best foundation for you to use because it is tough, transparent, will not sag, and has the odor of pure beeswax.

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This is the cheapest way for you to secure your foundation

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Our warehouse is well filled with all kinds of bee-keepers' supplies. Five per cent discount during November.

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We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at LOWEST PRICES, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. SPECIAL DISCOUNTS now. Write to-day. Address

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**WANTED.**—20,000 pounds pure clover honey. Send average sample and state best price.  
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**FOR SALE.**—Buckwheat honey in 60-lb. cans, at 6c per lb.  
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**FOR SALE.**—350,000 pounds California water-white extracted honey by the case or car.  
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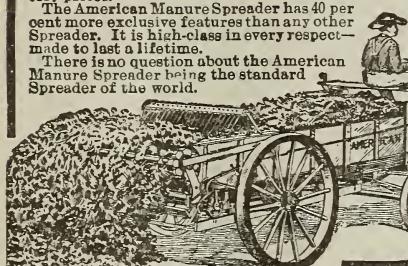
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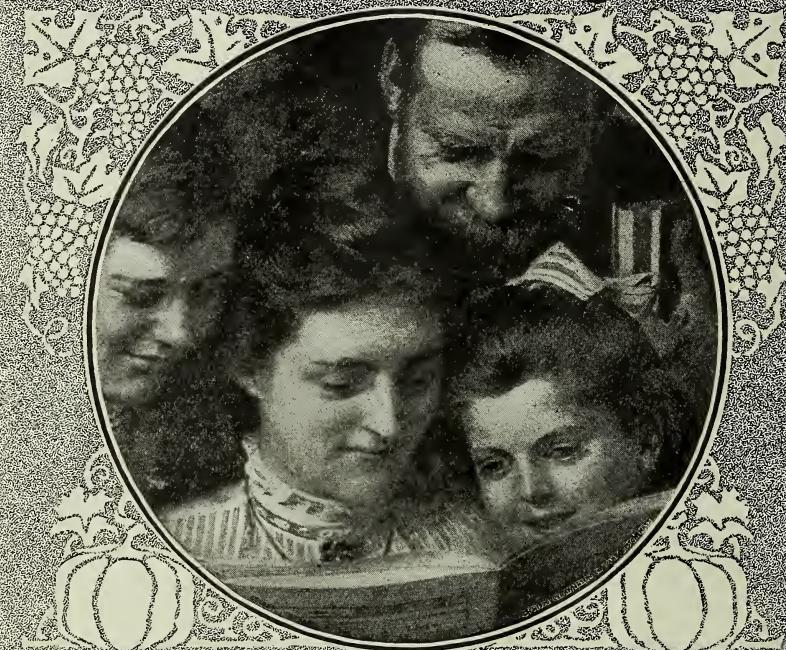


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Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red clover and Golden Italian queens promptly.

I am now paving 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

**Udo Toepperwein - San Antonio, Texas**

1322 South Flores Street

## Gloves for Handling Bees

Something New. Something You Want.

Our specially prepared Gloves soften the hands, and prevent and cure chapped hands. The fabric contains a preparation which prevents the gloves from becoming hard and stiff. We furnish them without armlets or sleeves for using in sweeping, gardening, or general housework, driving, or outdoor work. They are just the thing for driving in the rain, as they are absolutely waterproof. If worn at night they keep the hands soft and white. All their points of excellence can not be here enumerated, but they never fail to give the greatest satisfaction. To introduce them, we will send by mail or with other goods at the following low prices:

Bee-gloves—long arms, fleece-lined in two sizes—large for men, small for ladies.....35 cents  
Men's gauntlets, fleece lined .....35 cents Ladies' gauntlets, fleece lined.....35 cents

Ladies' unlined for wearing at night or doing light housework.....40 cents

Early-order discounts on bee-supplies (excepting above and a few other articles) as follows:

5% for cash with order before December 1st

4% for cash with order before January 1st 3% for cash with order before February 1st

If you haven't our 1906 catalog send for one and a free copy of The American Bee-keeper (50c a year).

**The W. T. Falconer Manufacturing Co., Jamestown, N. Y.**

## New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

### Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

**Howkins & Rush, 124 West Liberty St., Savannah, Ga.**

# HONEY!

INSTEAD of having honey offered us by bee-keepers this year we have had inquiries from nearly every quarter for good white honey. We have secured an unusually fine lot of

### Water-white Alfalfa Honey

packed in sixty-pound cans, two in a case. We offer this at the following prices, f. o. b. Hamilton:

Two 60-lb. cans . . . 8c per lb.

Ten 60-lb. cans or more, 7½c per lb.

This honey is giving entire satisfaction, and is selling where we have previously furnished white-clover honey.

Samples on application.

**Dadant & Sons, Hamilton, Ills.**

We are allowing Liberal Discounts on Bee-supplies Now.

# Root Goods

## for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

**Jos. Nysewander, Des Moines, Iowa**

565, 567 West Seventh Street